FLIGHT

The AIRCRAFT ENGINEER AND AIRSHIPS

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Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice and Progress of Aerial Locomotion and Transport

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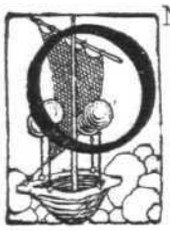
Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list—

1930
June 27 .. R.A.F. Dinner Club Annual Dinner.
June 28 .. Royal Air Force Display, Hendon.
June 28-July 5 Brighton Air Week.
July 5 .. King's Cup Race and Hanworth Air Pageant.
July 9-12 .. R.A.F. Athletic Championships, Uxbridge.
July 13 .. N.F.S. Flying Meeting, Leeds.
July 17-23 "British Week" at Antwerp Exhibition.
July 19 .. N.F.S. Flying Meeting, Hull.
July 19 .. Air Pageant at Hanworth, in Aid of National Birthday Trust Fund.
July 19 .. S.M.A.E. Model Competitions, Halton Camp.
July 20-Aug. 7 International Light 'Plane Tour of Europe, starting from Berlin.
July 26 .. Norwich Flying Meeting.
July 31 .. Entries close for 1931 Schneider Trophy Contest.
Aug. 15-31 Circuit of Italy.
Sept. 1-6 5th International Air Congress at The Hague.
Sept. 6 .. Opening of Ratcliffe Aerodrome, Leicester.
Sept. 20 .. Liverpool Air Pageant.
Sept. 27 .. N.F.S. Air Meeting, Hanworth.
Nov. 28-Dec. 14 1932 Paris Aero Show
May 31 .. Closing date for Cellon Cross-Channel Glide £1,000 Prize.

FOR THE R.A.F. DISPLAY FUND.

The Proprietors of FLIGHT are allotting to the Proceeds of the R.A.F. Display (which are devoted to certain R.A.F. Charities) Fifty per cent. of the gross sales at the Display of this week's issue of FLIGHT.

EDITORIAL COMMENT



ONCE more the whirligig of time has brought round the week of the Royal Air Force Display. Tomorrow will probably see some hundred and fifty thousand spectators from all parts of Great Britain, the Empire, and from many foreign countries, gathered at Hendon to witness the finest and most beautiful show of flying to be seen anywhere in the world. The sheer delight of the spectacle is so great that many who see it find it hard to realise that to stage this great Display is all more or less in the day's work of the Royal Air Force. Some units naturally have to do extra practice on what might be called ceremonial drill, but whether a unit is to appear at the Display or not, it is always supposed to be able to keep good formation in all its manœuvres. Even what may be called the trick flying by the Central Flying School and other schools and establishments is only a case of probing deeper than before into the capabilities of the aeroplane. From year to year one sees fanciful performances which could hardly be of use in war, such as musical drill by a squadron, or flying with elastic ropes between the wing tips. But practising such feats increases the mastery of each pilot over his machine and adds to the efficiency of the squadron as a whole. Even an occasional item for which no actual utility can be seen, but which gives pleasure to the spectators, is easy to excuse. The Display is, among other things, a great example of propaganda for the Royal Air Force. It convinces the taxpayer that he is getting really good value for the very moderate amount of money which the Air Force costs him, and makes

The Royal Air Force Display

him less inclined to grouse at the small annual increases in the totals asked for in the Air Estimates. It is no waste of time for the squadrons and schools to give the public the best possible value for their entrance money. In addition to this, the proceeds of the Display go to help Air Force charities. But, on the whole, the Display is merely the culminating point in the year's training of the Royal Air Force. It does not interfere with more useful work, and it serves as a criterion of the standard at which each unit ought to aim.

To vary the programme from year to year must tax the ingenuity of the Display Committee. Very possibly the Committee worries itself unduly. Each year the Display has been so good that we feel sure the public would be content to have exactly the same programme repeated in the next year. There will be no very striking novelty this year, except for the appearance of R 101, which is not an aircraft belonging to the Royal Air Force. The parade of new and experimental types will not compare with the wonderful selection which was shown last year —though last year the novelties were shown at Olympia instead of at Hendon. To the technical man there will be unusual interest in the air-cooled "H" Napier engine installed in the De Havilland interceptor fighter, and in the steam-cooled Rolls Royce "F" engine in the Hawker Hart bomber; but these are not likely to make much impression on the general public. What we do regret, on the part of the public, is that little or nothing will be seen of the squadrons equipped with the latest type of fighter, namely the Bulldog, and the latest type of bomber, namely the Hart.

FLIGHT, however, has done what it can to show what the Display Committee have not seen their way to show. By the kind permission of the Air Ministry, members of our staff have visited squadrons which have received the Bulldog and the Hart, and have obtained photographs of the squadrons flying in formation in the air and of their machines on the ground. These photographs appear in this issue, and we venture to think that they will be admired by our readers. We believe that they are the first photographs ever published of complete squadrons of Bulldogs and Harts flying in formation. These machines are the very *derniers cris* of their respective classes, excellent in performance and easy to fly. The pilots who handle them are loud in their praises, and we are very gratified that we are in a position to give our readers some impressions of what they look like in action.

To accompany the photographs we publish an article on the work and the *raison d'être* of the Royal Air Force. This article, we believe, is also in a way unique, because we have never before seen in any weekly paper such a comprehensive and analytical account of the work of the Royal Air Force. Those who are able to read it before going to Hendon will, we imagine, watch the various items of the Display with a more understanding eye than they could otherwise have brought to bear on them. They will perhaps learn, perhaps understand better than before, that the Royal Air Force undertakes the air defence of Great Britain and also air work for the Navy and for the Army. For each of the three services it may have to perform any or all of three functions, namely, reconnaissance in the widest meaning of the term, bombing, and fighting. We have also followed our usual custom of publishing a photograph of each type of aeroplane which is shown in the Display, either in the air or on the ground. This, we believe, will also be appreciated by our readers. The events at the Display take place quickly, and follow each other with admirable promptitude. There is not much time for a spectator to study the details of the machines as he sees them flying over the aerodrome. He will be able to satisfy his curiosity at leisure from these photographs.

This section of the present issue will also explain that some types of aeroplane serve various purposes. The Wapiti and the Fairey III F are mainly "General Purpose" aeroplanes. As such they are not used at all in Great Britain, but are given to squadrons in overseas commands where they can be used for reconnaissance, army co-operation, medium bombing, etc. When used in Home Commands, they have specialized functions. At the Display, squadrons of the Auxiliary Air Force take part, using the Wapiti definitely as a day-bomber. In the parade of new and experimental types, another version of the Wapiti appears as an army co-operation machine. Likewise the Fairey III F is used by some bomber squadrons of the command Air Defence of Great Britain. The same type is also used by the "fleet spotter" flights of the Fleet Air Arm. In that case it becomes a reconnaissance ship-plane; but spotter flights of the Fleet Air Arm are not taking part in this year's Display.

Altogether, the programme for this year's Display promises a day of complete enjoyment, not unmixed with instruction. All that is needed is an absence of rain. We would not, even if it were in our power, press for dazzling sunshine; for many people find it headachey work to gaze up for long at an azure sky. A gentle gray colour makes the best and most effective background for silver aeroplanes. But we will offer up our orisons that there may be no repetition of the deplorable weather which marred the Display in 1922.

The Prince's New Aeroplane

THE Prince of Wales, who has for some time past been using one of the new Puss Moths, has now placed an order with the de Havilland Co. for a special one to be built to his requirements. The machine will, in a general way, be the standard Puss Moth with inverted Gipsy III engine, but the seating inside has been modified in order that the rear seat may be a specially large one. The upholstery is by Gordon England and is dark red in colour. The machine itself is painted dark blue as regards the top half of the fuselage and the rear struts, while the bottom half and the front struts are dark red with a thin silver line separating the two colours. The covered surfaces are aluminium with the exception of the rudder and fin, which are each divided into three equal vertical stripes of blue with red between them. The lower half of the engine cowling will be polished, and the registration letters are G-ABBS. The fuel system will incorporate a 35-gall. tank, and an extra instrument in the shape of a turn indicator is included on the dashboard.

The Prince Flying to Belgium

TOWARDS the end of next month the Prince of Wales will fly to Belgium in order to visit the British Section of the Antwerp Exhibition, of which he is a patron.

Rear-Admiral Byrd at Washington

REAR-ADMIRAL BYRD and 80 members of his Expedition were welcomed on June 20 by President Hoover at the White House in Washington on their return from the Antarctic.

THE VICKERS "VIASTRA"

New High-Performance Monoplane

SOME time ago we announced that West Australian Airways, Ltd., has on order from Vickers (Aviation), Ltd., some machines of a new type, to be known as the "Viastra." These machines are to have an unusually high performance (cruising speed in the neighbourhood of 140 m.p.h.), and a power reserve sufficient to reduce to vanishing point the likelihood of forced landings. It has now become permissible to publish a brief outline of the general design of the new machine, the fuselage of which is illustrated in the accompanying sketches.

The "Viastra," designed by the Vickers Weybridge staff, is being built at the Supermarine works at Woolston, and will be an all-metal machine, even to the covering of wings and fuselage, in which Duralumin plate is used. The machine is, as the small front elevation shows, a high-wing cabin monoplane. The design has been so planned that the machine can be supplied and used either as a single-engined machine, as a twin-engined or as a three-engined. Furthermore, two distinct types of undercarriage can be provided, a land undercarriage and a twin-float undercarriage. The "Viastra" should thus be extremely adaptable, and in one of its various forms should conform to the particular requirements of almost any operating company. At first sight it may appear somewhat surprising that one and the same machine should be capable of being fitted up for either one, two or three engines, but it should be recollected that with the three-engined arrangement, for instance, the wing loading will be largely increased, but the power loading will be decreased, and the number of engines will reduce the chances of a forced landing, so that the higher wing loading, and resulting higher landing speed, can be tolerated because one is justified in assuming that the machine will only have to alight on a prepared aerodrome. With one engine, on the other hand, the wing loading will be smaller, and the machine should be easier to land in an emergency.

The "Viastra" is being constructed very largely of Duralumin, in the form of sections of various shapes for the framework, and in sheet form for the covering.

The forward portion of the fuselage has a frame of Duralumin sections, and is covered with Duralumin plate, a sound-deadening stuffing being used to reduce noise in the cabin. The rear portion of the fuselage also has a Duralumin structure and covering, but not, of course, the stuffing.

The monoplane wing has Duralumin spars and ribs and Duralumin plate covering. The wing bracing struts are, however, of steel, and are faired to a streamline section.

The land undercarriage incorporates Vickers' oleo-pneumatic telescopic legs and Dunlop wheels, and Vickers' hydraulic brakes are fitted. These can be operated independently to facilitate manœuvring on the ground.

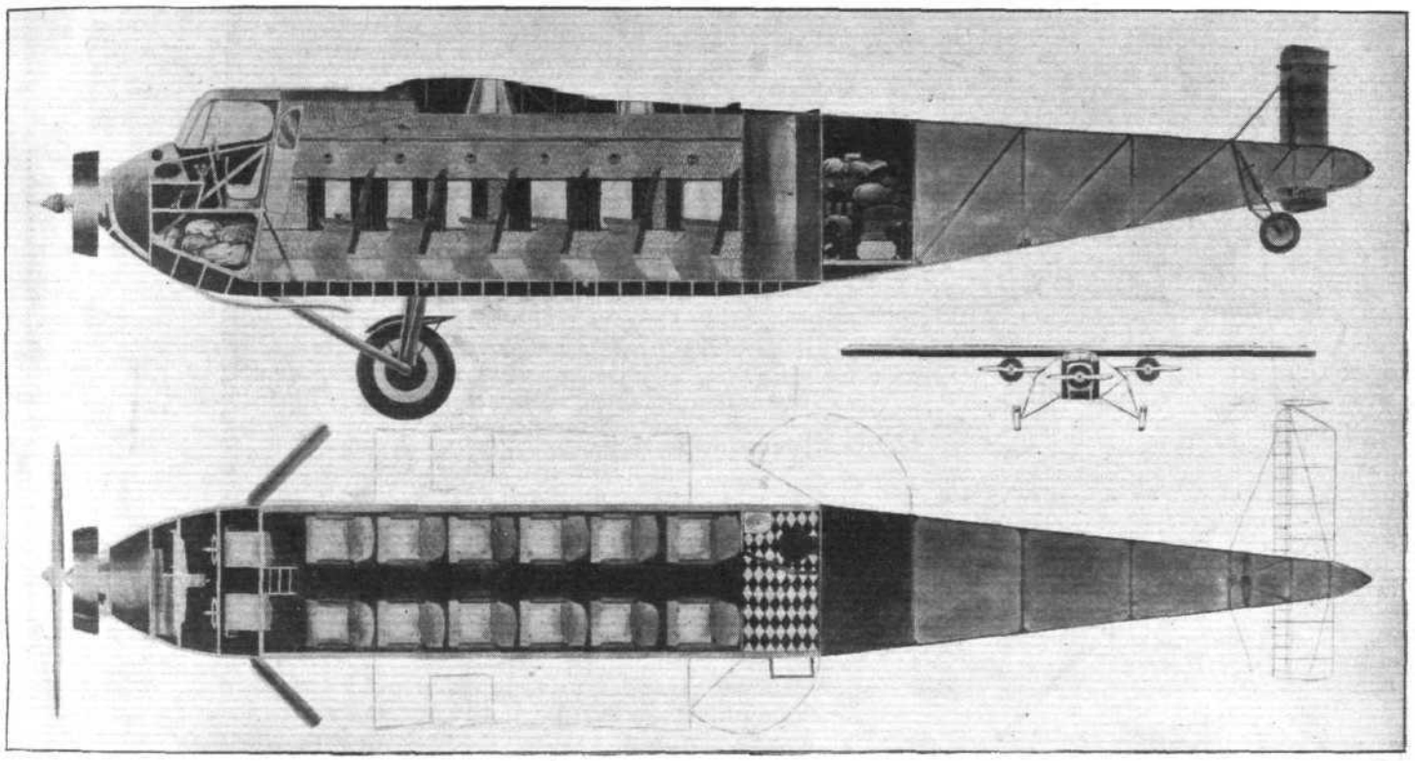
The lay-out of the passenger accommodation may be seen in the sketches. There are two rows of seats, one along each side, of six each side, giving a total passenger capacity of 12. The pilots' cockpit is in front of the cabin and wing, and should give a very good view in the essential directions. Dual controls are provided, and the two seats are placed side by side in the cockpit. Heating of the cabin can be either by electricity or from the exhaust. A novel system of ventilation will be employed, by which the windows in the sides of the cabin remain closed, thereby helping to keep out the noise of the engines. The cabin volume is no less than 640 cu. ft., while the lavatory, aft of the cabin, has a volume of 84 cu. ft. There are two luggage holds, each of 100 cu. ft. capacity.

Should the machine be required as a fast freight carrier, the chairs can easily be removed and the large hold used for freight and goods.

The petrol system is of the simple gravity-feed type, with two aluminium tanks placed in the outer wings. All pipe couplings will be of the screwed metal-to-metal type.

The seaplane chassis will consist of two Duralumin floats supported on a framework of steel tubes. Owing to the wide track the machine should have excellent lateral stability both on the ground and on the water.

Details of the power plant are not yet available, but the machine may obviously be fitted with almost any type of engines of suitable power. The drawings show radial air-cooled engines, of which several makes and ranges are now available. West Australian Airways use "Jupiters," and it may be assumed that the machines to be sent out to Australia will be fitted with engines of this type.



THE VICKERS "VIASTRA": These sketches give some idea of the passenger accommodation, &c. The machine will be of all-metal construction, including the covering of wing and fuselage.

GETTING AWAY: With its light wing loading the "Redwing" has a very good take-off and climb. (FLIGHT *Photo.*)

INTRODUCING THE "REDWING"

New Side-by-Side Machine Demonstrated

ON Thursday of last week, June 19, Air Vice-Marshal Sir Sefton Brancker, Director of Civil Aviation, christened the first machine to be designed and built by the Robinson Aircraft Co., Ltd., of Stafford Road, Wallington, Surrey. A number of invited guests were present at the little ceremony, which took place at the London Terminal Aerodrome, Croydon.

Sir Sefton said he always welcomed competition because keen competition meant progress and progress was needed in order to hold our own against the aircraft constructors of other countries. He was, therefore, very glad to see the enterprise shown by Mr. Robinson and those associated with him in coming into the British light 'plane market, and if appearances were any criterion the new machine should do well, as the lines were, he thought they would agree, very beautiful indeed. He wished the new firm success, and christened the machine by stripping off a square of fabric disclosing the name "Redwing."

The machine was then demonstrated by Ft.-Lt. S. F. Woods, who did several loops and other evolutions. The take-off was extraordinarily good, the "Redwing" leaping off the ground after a very short run and maintaining an excellent angle of climb after once leaving the ground.

The Robinson "Redwing," the first photographs of which were published in our issue of June 13, is a side-by-side two-seater fitted with an A.B.C. "Hornet" engine of 80 h.p. This engine, it will be recollected, is a four-cylinder air-cooled, double flat-twin, and in the Robinson "Redwing" a very neat cowling has been designed for it, which encloses and fairs the engine very cleverly, yet leaves the cylinder heads exposed not only for cooling but for any attention that may be required by valves, plugs, etc., without disturbing the cowling.

The "Redwing": This view of the nose gives a good idea of the neat engine cowling, the undercarriage, &c. (FLIGHT *Photo.*)

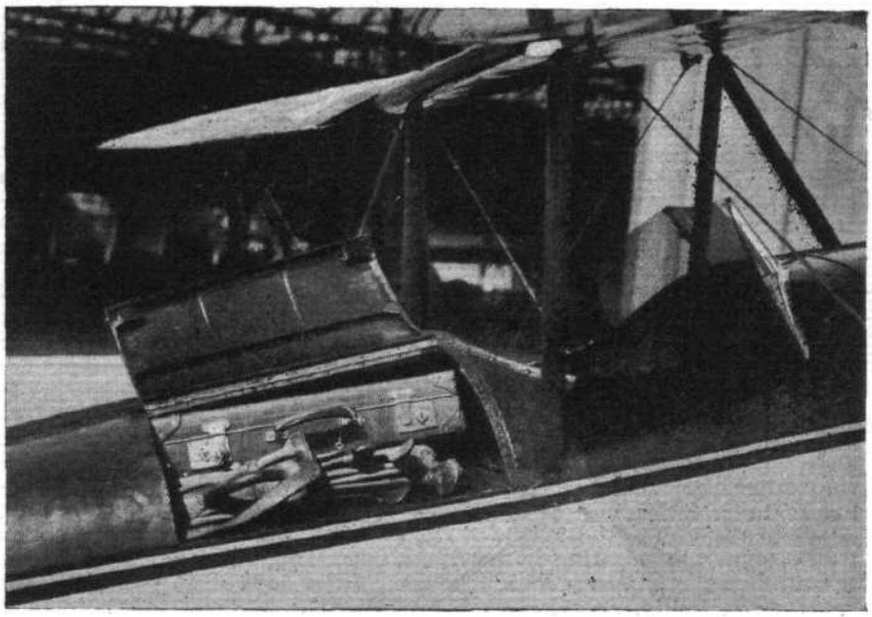
The machine was designed by Mr. John Kenworthy who, it may be recollected, was responsible for the first post-war British light 'plane, the Austin "Whippet." That Mr. Kenworthy should now return to the fray as the designer of a modern light 'plane is a fact to be welcomed. His "Whippet" was a good little machine, but it suffered from two drawbacks: No engine of the quality of modern light 'plane engines was available at that time, and the "Whippet" was before its time.

The "Redwing" has been designed not with a very high top speed in view but rather has the designer aimed at a machine with a very low landing speed, to be controllable at and near the stall, and to be very easy to fly. How far he has succeeded cannot be definitely known until the machine has passed its type tests at Martlesham and

has seen a deal of service in the hands of the average owner-pilot. The three pilots who have flown the machine hitherto report that it handles very nicely and has no pronounced vices of any sort, so that it would seem that the "Redwing" starts its career very well.

The first machine is of simple wood construction, and the first production batch, work on which has now begun, will be of similar construction. But the design has been so planned that, should it later be thought advisable to turn over to all-metal construction, the change can be made without affecting the design to any appreciable extent.

The side-by-side seating arrangement, although the fuselage is by no means a very wide one, is quite comfortable, and if the machine is to be used for instructional work a duplicate set of controls can be fitted. For ordinary touring the side-by-side arrangement should enable the occupants to talk in reasonable comfort without the use of telephones, at any rate when the engine is throttled to cruising speed. A result of the side-by-side placing of the seats has been that but a single instrument board (Smith's) serves both occupants equally well.



A large luggage locker, with rearward extens on for golf clubs, is a feature of the "Redwing." (FLIGHT *Photo.*)

The luggage locker behind the cockpit is of large dimensions, and is provided with a rearward extension for the purpose of accommodating long articles such as golf clubs, etc. This feature is shown in one of our photographs.

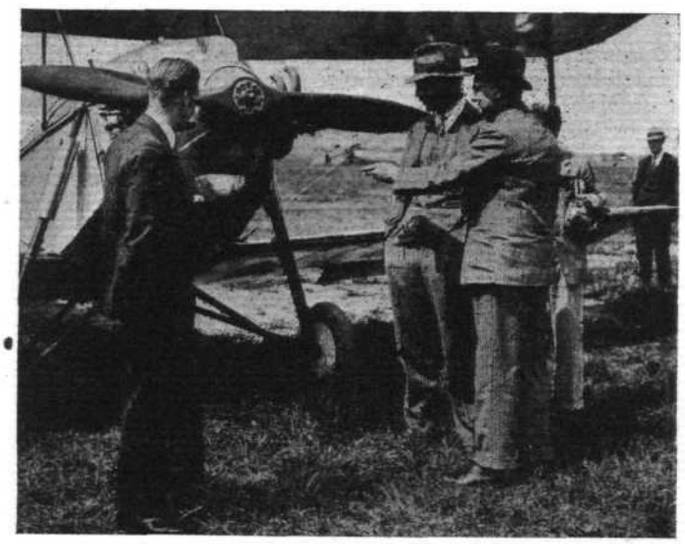
An undercarriage of wide track is fitted, and the compression struts incorporate "double-acting" oleo legs, designed to give ample shock-absorbing qualities without bouncing.

The wings are designed to fold, and the machine then takes up a space of but 10 ft. in width and 23 ft. in length.

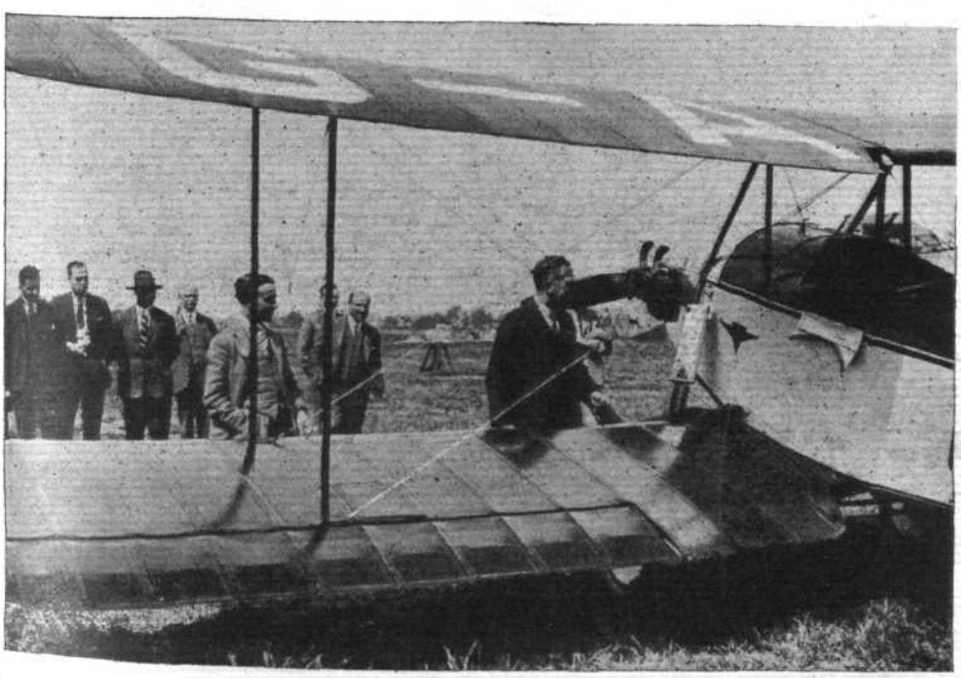
The standard equipment includes the following items: Two safety belts, pneumatic cushions for the seats, two suitcases fitted in locker, ladies' companion, large map locker, and two small lockers in dashboard, Tecalemit grease gun for control system, floor mat, engine tool kit, aircraft and engine log books, picketing rings, "Ki-gass" primer, long exhaust pipes, Splintex safety glass, red and cream colour scheme. With this equipment the price has been provisionally fixed at £575.

The tare weight of the "Redwing" is 800 lb., and gross weight for normal C. of A. is 1,325 lb., and for the aerobatic C. of A. it is 1,150 lb.

The main dimensions of the "Redwing" are as follows: Length, 22 ft. 3 in.; span, 30 ft. 6 in; width, folded, 9 ft. 8 in.



The Power Plant: Mr. Dennis (right) pointing out to Lord Ridley (Chairman of A.B.C. Motors) the neat cowling of the A.B.C. "Hornet" on the "Redwing". On the left is Mr. Elliott, who designed the "Hornet." (FLIGHT *Photo.*)



The Christening Ceremony: **Air Vice-Marshal Sir Sefton Brancker, Director of Civil Aviation, "unveils" the name "Redwing."** (FLIGHT *Photo.*)

Official performance figures are not available until the machine has been through the Martlesham tests, but it is estimated that the top speed will be 92 m.p.h., the cruising speed 84 m.p.h., and the landing speed 30 m.p.h., while the climb to 1,000 ft. should be accomplished in about 1½ mins.

CROYDON NOTES

ON Monday, June 16, Lord Strickland, the Maltese Premier arrived here on "Golden Ray" F-AIFE, piloted by M. Nevot. He had flown from Marseilles by Air Union and was so pleased with the saving of time, general comfort, and convenience, that he expressed his intention of always travelling by air where possible in future.

Sqdn.-Ldr. E. L. Johnstone, O.B.E., of airship fame, and deputy master of "The Guild of Air Pilots and Air Navigators of the British Empire," came "breezing" in on Wednesday, all smiles as usual. "Johnnie" is busy fixing up wireless arrangements for the R. 100, about which he is extremely enthusiastic.

We are glad to see Capt. Stack back after his business air tour of several European capitals.

He spent a week in Rome whilst the Air Pageant was in progress at Littorio Aerodrome, and speaks very highly of the Italian Air Force evolutions, especially the flying and looping in formation, in reply to which he himself gave several aerobatic displays to the delight of the assembled multitude. Stack is now concentrating on the King's Cup Race, in which he will fly a special Avro-Mono, Hermes. Later he is off to Amsterdam, Berlin, Posen, Warsaw and Madrid.

In connection with the Tourist Trophy Races, Imperial Airways, Ltd., have been running an early morning paper service, leaving Manchester at 3.30 a.m. and arriving in the Isle of Man at 5 a.m.

Between Monday and Friday G. P. Olley successfully completed four return trips on an H.P. W.10 machine. In the words of Henry Biard of Supermarine's, he said the 60 miles of sea did not look at all "matey."

Incidentally Herren Woolf Hirth and Oskar Weller returned from the "Happy Isle" on Friday, having had a most enjoyable time, except for the fact that the usual senseless crowd in pressing round the little Klemm-Salmson, managed to damage the wings.

What an awful thing crowd psychology is!

After much questioning and coaxing, we were able to get a few words out of Capt. Donald Drew (who shall be likened unto the proverbial "shut oyster") about his flight from Rochester to Athens with Mr. B. W. Wilson, when they delivered the New Calcutta G-AATZ. Leaving Rochester on June 5 they flew via Cherbourg, Bordeaux, Marseilles, Genoa, Naples, Corfu to Phaleron. The weather in the Mediterranean was beautiful, and cruising at a height of 6,500 ft. they picked their way amongst enormous cumulus clouds, rising to 18,000 ft. On encountering a particularly large mass, they decided to go round rather than be tempted to push through, and it was lucky they did so, for on turning the corner they were confronted with a frowning mountain peak, against which they would certainly have flattened themselves had they flown directly through.

Their actual flying time was 27 hours 44 min., and both pilots are in raptures over the New Calcutta, which they consider a marvellous flying-boat. Without the slightest doubt the future of British Civil Aviation lies in huge flying-boats, of which the Calcuttas are the forerunners.

Major Clarke of Walcot Air Lines, has been away all the week on a special charter tour, during which he visited Berck, Paris, Bordeaux, Biarritz, and Pau. He returned to Heston last Sunday. Who would not be an air pilot?

On Friday morning the Robinson Aircraft Co., Ltd. "Redwing" was christened before a crowd of distinguished visitors, by the Director of Civil Aviation, Air Vice-Marshal Sir Sefton W. Brancker, K.C.B., A.F.C., who spoke very highly of the machine, and welcomed competition, which is for the advancement of aviation. The "unveiling" ceremony is certainly more refined than breaking bottles of "bubbly" on propeller bosses.

"Timber" Wood then took the machine up and gave a fine display of looping and rolling, after which S. F. Finley likewise disported himself. It is an attractive proposition with the very low landing speed of 35 m.p.h., all out speed 95 m.p.h., and under perfect control flying at 42 m.p.h., side by side, splendid view forward owing to "flat" engine, 85 h.p. Hornet, and 20 m.p.g. of petrol, folding wings—all for £575.

The Imperial Airways, Ltd. inland air service between London, Birmingham, Manchester and Liverpool is from all accounts proving to be a great success. Business men are now waking up to the fact that they can be in Paris five hours after leaving Liverpool.

The volume of business from Croydon to the Continent is steady, with 1,434 passengers and 72 tons goods this week, June 15-21.

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THE NEW DESOUTTER MONOPLANE: The Mark II, with Gipsy III engine, has now been flown at Croydon, and appears to come well up to expectations. The clean nose produced by the inverted engine adds greatly to the appearance of the machine, as does also the new style of tail and slightly shallower fuselage. The new machine is likely to become very popular at the price for which it is to be marketed.

(FLIGHT *Photo.*).

GLIDING

THE BRITISH GLIDING ASSOCIATION announce that the demonstrations of soaring flight organised by the British Gliding Association will be continued with the following fixtures:—Weymouth, June 28 and 29; Folkestone, July 5 and 6; Scarborough, July 12 and 13.

The B.G.A. regrets that it has not been possible to arrange for any further demonstrations because Herr Kronfeld returns to Germany on July 15, to prepare for the "Rhön" Competition at the Wasserkuppe.

The demonstrations will be flights by Herr Kronfeld on his sail-plane the "Wien," a Prüfling, and a British built Zögling type glider.

There will be no tent accommodation or instruction.

Members of the British Gliding Association and members of Affiliated Clubs are admitted free on production of their Membership Cards.

THE DORSET GLIDING CLUB started activities at Maiden Newton on Saturday, June 21.

Over slopes once trodden by Roman legions the club's glider made the longest flights members have yet undertaken.

The Club, not yet three months old, leaves the gliding ground in the charming valley of Upcerne, near Cerne Abbas, in order to carry out more advanced flying.

The Club expects to operate at Maiden Newton for some time to come. The long slopes catch the four winds, and are not too dense with gorse or other obstacles. An arterial road and a railway junction make the area easy of access from all parts of Dorset and the south-west.

Considering the scattered and sparsely-populated territory it serves the club has made highly satisfactory progress. To-day the membership is 60, against 30 four weeks ago—and there are ten enthusiastic lady members who claim to be the first feminine devotees of the sport actually to glide in Britain, brief though their flights have been—Mrs. H. J. Penrose (5 secs.) and Mrs. N. W. Wright (6 secs.) are the leaders.

At every meeting of the club—nine have been held since May 16—improvement in the all-round gliding skill of members becomes apparent. Short flights are safe flights and no novice is encouraged to follow the swallows. "Thou Shalt Nots," uttered by careful team captains, coupled with their unfailing fund of patience and helpfulness, are having the desired effect. Members who feared they would never do more than taxi down the slopes are now sailing through the atmosphere quite calmly—as 150 flights bear witness. Air-sense comes with perseverance, but no member contemplates a Transatlantic crossing, yet.

From Honiton (Devon) to Purley (Surrey) the Club membership extends. Dorchester, Portland, Weymouth and Yeovil are at present the most concentrated centres, with Sherborne not far behind.

Financially, the Club is finding its feet. A sum of £20 has been repaid to the Dorset man who advanced the £55 necessary to buy the glider, a kindness which enabled the club to be one of the first in the land to carry out flying.

The club now has a proportion of associate (non-flying) members who pay half-a-guinea subscription annually, and a voluntary payment of 3*d*. per flight made is proving a fruitful source of revenue.

A membership of 100 is not far distant. Three meetings a week are held. Wednesday programmes, which begin at 6.30 p.m., are to be devoted to intensive training in future. On Saturdays and Sundays operations start at 2.30 p.m.

The public are cordially welcomed to club meetings. but it should be noted that no sport being more dependent upon the weather, meetings have occasionally to be cancelled at short notice. On doubtful days inquiry as to meetings should be made at the club's central information office, 5, Royal Arcade, Weymouth ('Phone Weymouth 352). Mr. H. Campbell Johnston, 4, Derby Street, Weymouth, is Hon. Sec.

The Maiden Newton flying ground is 1¼ miles along the main Yeovil road from Maiden Newton railway station. No meeting will be held on June 28, the date of the R.A.F. Pageant.

THE BOLTON LIGHT AEROPLANE AND GLIDING CLUB has just been formed and all those in that district who are interested should apply to the Secretary, J. Denton, 7 Bute Street, Bolton. Mr. R. S. Howarth is the Chairman, and Mr. Van Foster, the Club Instructor. A primary glider has been ordered, and it is hoped to start gliding in about four weeks' time. At present over 30 members have joined and a suitable gliding ground is being negotiated for.

THE OPPOSITION with which the Nottingham Gliding Club met at Oxton when Sunday meetings were held has resulted in the termination of their activities in that village. A new ground has been secured between East Bridgford and Kneeton, but we understand that the present arrangement is only temporary.

Mr. A. Logelain, the original founder of the Club, has just returned from a visit to Belgium, where he has been studying gliding. He says that the Belgians are making great progress and he has come back full of ideas which he hopes to utilise in Nottinghamshire during the next few months.

MISS AMY JOHNSON has accepted the Vice-Presidency of the newly-formed Scarborough Gliding Club.

THE CONONLEY & DISTRICT GLIDING CLUB.—A Gliding Club, bearing the above name, was formed on June 19.

A dozen enthusiastic members, intend purchasing a glider as soon as possible, and a minute was passed: "That the Club adhere to aircraft of British manufacture as far as is humanly possible." The Hon. Secretary is Mr. H. M. Sellers, 178, Skipton Road, Keighley, Yorkshire.

BRIGHTON GLIDING CLUB.—A Gliding Club is to be formed in Brighton and district. The country around is particularly suitable, and Mr. F. G. Leaney, of Hanover Crescent, Brighton, is taking the first steps to form the Club.

ISLE OF WIGHT GLIDING CLUB.—A meeting to inaugurate a gliding club for the Isle of Wight will be held at Newport shortly, under the Presidency of the Mayor of Newport, Mr. H. W. Horan.

WINCHESTER GLIDING CLUB. Sufficient support has been found for a start to be made and an order for the Club's first glider has been placed.

From July 1 the subscription for gliding members will be £2 2*s*. per annum.

Persons enrolling as gliding members and paying their subscription before that date will be accepted at £1 1*s*. for the first year. The subscription for Associate Members is 10*s*. 6*d*. The Hon. Sec. is Mr. Walter Russell, whose address is Fordington Road, Winchester.

THE SAIL-PLANE CLUB OF T.M.A.C.—The use of suitable ground at Horton Farm, Smalldole, Sussex, has been obtained and it is extensive and really excellent for the purpose. Smalldole is situated 1½ miles from Bramber and 3½ miles from Steyning.

An order is now being placed for a Zögling type glider and a hangar is about to be erected which will accommodate several machines.

Those who wish to avail themselves of the opportunity of becoming Founder Members should forward their application at once to John Welding, Hon. Secretary, The Sail-Plane Club of T.M.A.C., 404, King's Road, Chelsea, S.W.

LANCASHIRE AERO CLUB.—Practice with the glider has been somewhat held up during the last week or two, and some difficulty is being experienced in finding a suitable site for longer flights. It is hoped, however, in the near future that this difficulty will be overcome, when the Gliding section hopes to be active.

AIRISMS FROM THE FOUR WINDS

Another England-Australia Flight

ON June 20 Mr. E. L. Hook and Mr. J. Matthews set out from Lympne in a D.H. "Moth" with the intention of attempting to beat Bert Hinkler's record flight to Australia. Their venture had been kept more or less secret and only a few knew of their intention. They were expected to arrive at Marseilles the same evening, but did not put in an appearance until the following morning. It appears they had to land at Lyons, and did not inform the officials that they were on the Australian flight. Later they left for Pisa, where they spent the night, proceeding next morning (June 22) for Naples and Catania, thence to Cairo, which was reached on June 23. Next morning they left for Gaza.

R.A.F. Flying-Boat Cruise to Iceland

THE two R.A.F. Blackburn "Iris" flying boats which, under the command of Wing-Comdr. S. Smith, are paying a flying visit to Iceland in connection with the Icelandic Parliament 1,000th anniversary celebrations, left Mount Batten air station, Plymouth, on June 22 for Reykjavik. Bad weather prevented their starting the previous day, as arranged.

New York-Mexico Non-Stop

COL. ROBERTO FIERRO, the Mexican military pilot, accomplished the first non-stop flight from New York to Mexico City, on June 21. He flew a Lockheed "Sirius" low-wing monoplane, similar to that in which Col. Lindburgh made his Pacific-Atlantic coast flight recently, and took 16 hr. 33 min. for the journey, averaging 133 m.p.h.

R 101 Out Again

R 101 was taken out of her shed at Cardington early on June 23 during, it is stated, the highest wind in which a British airship has yet been handled. Although favourable conditions had been forecasted, when the airship was ready to be "de-hangared" the wind rose to some 20 m.p.h. Later, however, it dropped to about 11 m.p.h. and, as it was blowing along the shed, the airship was able to be walked straight into the wind through the shed doors. She was safely withdrawn in about four minutes, and an hour later was moored to the mast. Some damage occurred to the fabric, however, but this was repaired later on, whilst the airship was moored to the mast.

Lindburgh, Jnr.

ON June 22, her twenty-fourth birthday, Mrs. Charles Lindburgh gave birth to a son. Needless to say, the event caused considerable enthusiasm throughout the States, and messages of congratulation came along in thousands to Col. and Mrs. Lindburgh.

The British Arctic Air Route

FURTHER references to the British Arctic Air Route, an article on which was published in our issue for June 6 last, were made at the annual meeting and dinner of the Royal Geographical Society, on June 23. In his address to the meeting, Col. Sir Charles Close mentioned the expedition which is shortly to leave England of which the Society has high hopes. If there were to be an air route from this country to Western Canada and the Pacific, he said, it must go across that zone of Greenland which was least accessible on the east coast and almost totally unknown inland. No serious organization could be undertaken until we knew what mountain ranges emerged from the interior ice-cap and the general conditions of the weather. Thanks, chiefly, to the munificence of private supporters, Mr. Watkins had been able to organize an expedition of 12 or 14 men who would sail in the *Quest* for the east coast of Greenland to work for two summer seasons and the intervening winter. The British Arctic Air Route Expedition, so quietly and thoroughly prepared, was the most important British Arctic venture of recent years. It took with it the particular good wishes of the Society, the best instruments it could furnish, and a little of its money. It had with it specialist officers of the British Army, Navy, and Air Force, and it had the cordial goodwill of the Danish Government.

Lord Thomson, Secretary of State for Air, proposing the toast of "The Society," at the subsequent dinner, said, in connection with the expedition, that when the scheme was put before him some time ago by a number of enterprising young men, he was able to give encouragement to the enterprise, but, alas! he was unable to produce any funds. He was glad to learn that the Society, which had no doubt more funds available than the Chancellor of the Exchequer, had made a contribution towards the project. The possibility of reaching Canada in two and a half days from England would be a great step forward in aerial communication. The advantages to be derived thereby both by this country and Canada were obvious.

Speaking of the great assistance of aerial navigation to survey work, Lord Thomson said he expected that the air survey of Northern Rhodesia, covering 90,000 square miles, would be completed and the results published within two years, a fact which ought to convert the doubting Thomases to the value of that form of survey. The airship was going to be of great assistance to geographical survey, because the surveyors would have the opportunity of working from a stationary vessel, with every conceivable instrument at their disposal, and would be able to hover almost indefinitely over the territory being explored.

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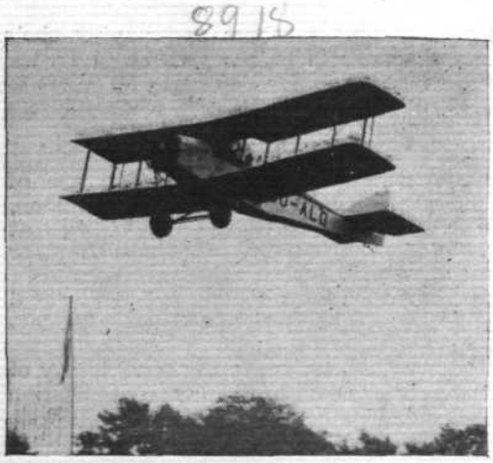

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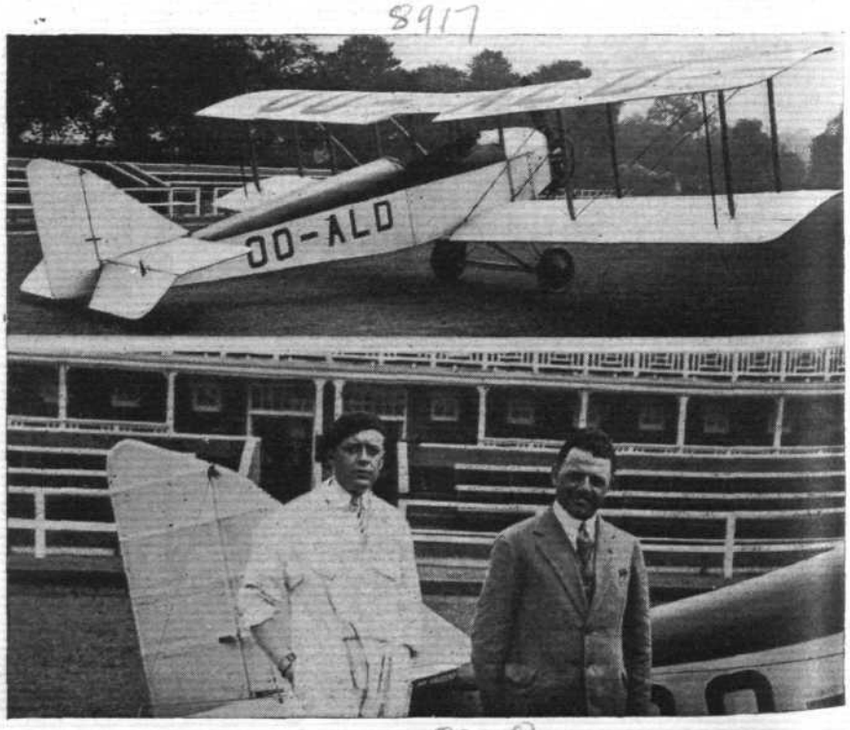

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A BELGIAN TRAINING MACHINE: The Bulte two-seater, which is marketed in this country by Sealandair, of 142, Long Acre, arrived from Belgium last week. Bad weather conditions prolonged the flight, and oil trouble necessitated a landing at the Hurlingham Polo Ground. The machine took off again without difficulty. The crew were Adjutant Lang and Mr. Gray (in white). (FLIGHT *Photos.*)

Mr. Lampich Arpad and his Hungarian Lampich-Thorockay Monoplane (18-h.p. 3-cyl. engine) on which he established a record of 12 hrs. 34 mins. and 1,033·4 kms. (Matyasfold to Monor, Budapest) on June 14

Puss Moth in the Channel

ON June 22 a de Havilland Puss Moth, owned and piloted by Mr. Hilton Murray Philipson, who had with him his brother, Mr. James Murray Philipson, and a mechanic, fell into the Channel under somewhat unusual circumstances. The weather was very thick over the Channel at the time, and Mr. Philipson lost his bearings. Coming down low, he circled around a tramp steamer in the hope that the crew of the steamer would point towards the land. This they ultimately did, but in the bad visibility and with no horizon to guide him, the pilot banked too steeply near the water, a wing tip caught, and the machine dived in. Fortunately, the three occupants were able to get out through the doors and the emergency exit in the roof, and although the fuselage was instantly filled with water, the wing kept the machine afloat for some six or seven minutes, which was sufficient for the crew to be picked off by a vessel. It is worth while placing on record the fact that the accident was *not* due to any trouble with the engine. Also, it is reassuring to know that a Puss Moth will not only get down without turning over, but will float long enough to enable the occupants to get out.

Aero Mishaps in the Irish Free State

BY strange coincidence, two privately-owned 'planes in the Irish Free State decided to misbehave on the same day, ie., Thursday, the 12th. As the Hon. A.E. Guinness's "Hermes" engined amphibian "Cutty Sark," piloted by Mr. Allison, was leaving Baldonnel aerodrome, one of the engines "conked-out" and a forced landing had to be made somewhat hastily; as it was down wind and into a flock of sheep, the pilot did well to land without damaging either machine or sheep! The 'plane has been towed back to the hangars for overhaul. The second mishap was of a more serious nature. A D.H. "Moth," owned by Mr. Cyril Gleeson, was being piloted over Lough Derg, County Clare, by Mr. W. C. Sutcliffe (of the Midland Aero Club), with Mr. James Gleeson as passenger, when engine trouble forced the 'plane down and compelled the pilot to "pancake" on the water. Fortunately a hydroplane was at hand and both the occupants were rescued. The wings and propeller were found to be damaged when the machine was towed ashore and examined by a "crash party" of the Army Air Corps. It is understood that the 'plane is being dismantled and will be returned to the De Havilland Company for reconstruction.

Indian Air Mail Record

THE Karachi-Croydon air mail, which arrived at Croydon on June 16, accomplished the journey in the record time of six days, in spite of the fact that the start from Karachi was delayed a day owing to bad weather.

Junkers "D.2000" in Paris

THE giant Junkers G-38 monoplane, "D.2000," flew from Germany to Le Bourget, on June 17, carrying a crew of seven and 16 passengers.

U.S. Planes for Russia Banned

IT is reported that the Hoover Administration, acting through the State Department, has warned the Glenn Martin Co., of Baltimore, that it regards with disfavour the company's negotiations with Soviet Russia in connection with the sale of 20 bombers and other aircraft.

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CORRESPONDENCE

[The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.]

SLOW-LANDING AIRCRAFT

[2318] Letter No. 2313 on the subject of "Slow-Landing Aircraft" by Mr. Terence Langrishe, in your number of June 6, interests me very much as the writer has once again brought into prominence a subject so very often discussed with me by would-be owners of a private aeroplane; but for some reason very seldom does this discussion find its way into print or apparently into the design department of our aircraft firms.

I wrote a letter to a contemporary upon this subject about a year ago, but without apparently arousing the interest of either readers or manufacturers. At any rate no one bothered to comment upon the letter, and no manufacturer, excepting Mr. Dudley Watt, seems to care much about "Harry" or "Harry's pal," to use Mr. Langrishe's characters for my plot.

Needless to say, I have discussed this question of the placing on the market of a slow-landing aircraft with many people who should know what they are talking about, and since writing my letter to the press about a year ago, have given the matter considerable reflection with certain resulting modification of views.

Before going further there will undoubtedly be readers who will be thinking, "What's wrong with the good old 'Moth'? They have a pretty wide sale, and not many people manage to kill themselves in them!"

This is true, but for one person who is injured there are probably 40 machines damaged to an extent exceeding £100 and in most cases this is due to an effort on the part of the owner to use his machine as it should be used, and as it will have to be used if the light aeroplane is to become anything more than the luxury of a comparatively rich man who has plenty of leisure and money. I mean by this that most of the damage done to light aeroplanes is caused in landing or taking off from a field conveniently near to a friend's house or golf course.

There can be no question that the selection from the air of and subsequent use of, smallish fields such as are mainly available in this country is not a simple matter, and calls for more caution and experience in handling than is often available.

Without having any accurate data to work upon I should say that about half of the damage in these cases is done in the attempt at landing and half in the attempt at taking off.

One way, therefore, of providing a more suitable machine is to provide it with a really good performance as regards "take off" and climb. For economical reasons this will limit its full and cruising speed, as the present-day engine horse-powers cannot be much exceeded for a popular-priced private machine; in fact, it is my opinion that 60 to 70 h.p. should be the maximum power required.

Regarding landing speed, it is my experience that most of the difficulty in landing the present-day light plane in a confined space and over high obstacles, such as trees, is due to a tendency on the part of a comparative novice to gain speed in a gliding turn or side slip and so "float" right across the field. We all know that if a plane is brought in near enough to its stalling speed it will not float and also that "fish-tailing" will take off excess speed *if it is recognised in time that the machine is gliding too fast*, but nevertheless I maintain that it is only relatively experienced pilots who can do this consistently well and safely.

I have flown one machine which had a landing speed claimed for it of 25 m.p.h., and, lightly loaded, there is no reason to doubt the fact that this is an approximately correct figure. It was, however, more of a sailplane with an engine tacked on, and my impression was that slight excess of speed caused very long "floating" before the machine stalled on to the ground, and due to the characteristics of the whole machine, she was not easy to side-slip over trees to make a short landing such as is often required in the best available fields.

The problem seems to be one of designing a machine which will land slowly without "floating" and which has a high rate of climb, good take off, and good performance in level flight with a 70 h.p. engine. I think two seats are sufficient, even if more were practicable, and side by side dual control

is obviously desirable but *not* if such matters as all-round view, width of rudder bar, comfort and performance are unduly affected.

I cannot see that the low wing monoplane can be bettered for this purpose but think it essential that the factors of safety should be quite up to all aerobatics as the private owner will always want to do them some time and I think it's a good thing if he does.

To go back to this question of landing speed, I believe that a very great many of the troubles supposed to be caused by a high landing speed are in reality caused by rather a lower one than is generally realised, accompanied by bad "floating" characteristics.

Forty or even fifty m.p.h. landing speed should present no difficulty or danger if the machine really makes up its mind to get down at this speed and stay down, accompanied by the use of wheel brakes to shorten the run.

Many people, if they have bothered to read my letter this far, will be thinking that I have forgotten how unhandy this type of machine is likely to be on or near the ground in any sort of high wind, but while agreeing with this if the landing speed has to be very low I maintain that if the "float" characteristics can be got rid of there is no need for a very low landing speed. I do not profess to know more than superficially all of the problems confronting the designer of a machine like this, but it seems extraordinary to me that more men have not tackled the problem, and most British light planes seem to have been designed with half an eye on the "Moth" and are offered to the public at rather a stiffer price.

Finally, may I state that I, myself, am not a very experienced pilot, but have owned and flown light planes for about two years. I have, however, had the advantage of an R.A.F. training which is not available to every one, the equivalent of which would have cost me about £600 to purchase for myself even if it was available.

I cannot see the light aeroplane becoming the light car of the air, until machines generally are made much simpler to fly than any available at present.

There are, of course, a few private owners who have owned and flown their machines under all circumstances for a number of years with considerable success, but I think they will all agree with me that there are a great many occasions when they would very much have liked to use smaller fields than they dared to do.

Also there are at present a very high percentage of people who learn to fly—possibly take an "A" licence and then give it up because, if they were honest with themselves and us, there is no low-priced machine available, really useful and safe enough for them as yet.

All this applies to the machine suitable for an owner-pilot who can take his ticket at reasonable cost and then—with safety and ease straightaway use his plane for pleasure and business all over the country without being in any way above the average as a pilot, or having to spend a packet of money gaining experience and then, for some time, confining his activities to flying from one aerodrome to another, for this is a sport that soon palls. This is the really big potential purchaser of the future, and not the ex-R.A.F. officer or super keen amateur, who is naturally fairly proficient eventually.

The other and quite distinct type of machine which should find a ready market is the higher powered three or four seater machine which costs about as much as, say, a Bentley or Rolls; has a really good performance, and can be flown all over the country by a professional pilot-mechanic. The owner of this machine confining his aerial achievement to enjoying the view and occasionally taking the dual control for a spell.

Such a machine as the new Segrave "Meteor" seems likely to fill these requirements very nicely, at any rate if it lives at all nearly up to its designer's hopes.

PETER DU CANE, A.M.I.Mech.E., A.F.RAe.S.

June 10, 1930.

24, Rutland St. S.W.7.

Since writing my letter to you about a fortnight has elapsed during which time I have had the opportunity of flying the "Puss Moth," the latest production of Messrs. de Havilland and, quite apart from the fact that she is very obviously a large step forward in the design of private machines from every point of view, I learnt something which I must admit I did not fully appreciate when I wrote my previous letter.

If no air brakes had been fitted to this machine she would undoubtedly have been very difficult to put on to the ground, owing to the flat gliding angle and consequent float. By what appears to be the simplest of mechanism, however, the landing struts are revolved through 90° when it is desired to make a landing, and the side area of the streamline strut is presented to the air flow past the machine with most effective results.

This seems to be the simplest of methods of getting rid of the floating properties of an aeroplane and could presumably be applied in all cases. I have seen the device criticised on the score that it is something for the pilot to forget in taking off and landing, but then so is the tail adjustment, but no one bothers to criticise that nowadays and the mistake is very soon discovered.

P. DU C.

June 21, 1930.

CIVIL PILOTS FOR SCHNEIDER MACHINES

[2319] With reference to the "Airism" in FLIGHT, dated May 23, 1930, entitled "Who wants to borrow a Schneider machine," I feel that its last sentence may possibly deter some of our wealthy sportsmen, who might otherwise be inclined to avail themselves of the Air Ministry's offer in the event of a challenge next year.

I am quite sure that any of the test pilots named below could handle the Schneider machines without difficulty and, if approached, would be found ready and willing to do so if their firms could spare them.

Flt.-Lieut. A. M. Blake, of the Blackburn Aeroplane & Motor Co., Brough.

Mr. Lankester Parker, of Messrs. Short Bros., Rochester.

Mr. H. Broad, of the De Havilland Aircraft Co., Ltd., Stag Lane.

Flt.-Lieut. Bulman, of Messrs. H. G. Hawker Eng. Co., Ltd., Kingston-on-Thames.

There are several other civil pilots whose records would lead one to believe that they too could satisfactorily defend the trophy if given the opportunity.

Norwich, C. A. REA, *Sqdn.-Ldr., R.A.F.O.*

June 11, 1930.

[Sqdn.-Ldr. Rea has himself supplied the answer. What we had in mind was precisely the fact that it was more than doubtful that "their firms could spare them." We, less than anyone, need to be told that men like Blake, Bulman, Broad and Parker could fly the Schneider machines, given sufficient time for training, etc. But it is not a spare-time job to fly them at odd moments when the pilot happens to be free for a day or two from his ordinary work.—ED.]

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Toy Balloon Crosses the Atlantic

A TOY balloon, filled with hydrogen, was released at Caterham, Surrey, on May 21, in a competition at a church bazaar. It had a label attached requesting the finder to return it, stating when found. The label has been returned from New York, postmarked June 4, the finder, Mr. M. J. Israel, saying the balloon landed on the roof of 107, West 86th Street, Columbus Avenue.

The Romeo Ro. 5

IN our issue for June 20, we published a photograph of this machine and we now hear that plans for building it in this country are already far advanced, and it is hoped that construction will begin shortly. The first Italian-built Ro. 5 to arrive was demonstrated at Croydon recently by Mr. W. G. Pudney, the concessionaire, after having been flown from Naples to Norwich and thence to Croydon. The Ro. 5 is a tandem two-seater high-wing monoplane. The fuselage is of welded steel tubing, following Fokker practice. The undercarriage is notable for its wide track and the liberal wheel movement permitted by the oleo-rubber shock absorber gear. The wings follow normal lines in their construction, except for the provision of a form of flap gear, the mechanism of which is designed with typically Italian neatness. The folding is simple and rapid. The machine is constructed with open cockpits or closed cabin, but in either case large side doors are provided and there is ample room and freedom from draughts. The general construction is robust and accessibility for repair and inspection is a marked feature. The engine is at present the 85 h.p. Fiat radial air cooled, and with this power plant a speed of over 105 m.p.h. is claimed. With the higher powered British engines with which it is proposed to fit the Ro. 5, the machine should give an even better account of itself. The Romeo firm are licensees of the Fokker patents, and without in any way being a small Fokker the Ro. 5 shows throughout evidences of the application of some of the more successful Fokker features. It will be remembered that the Ro. 5 was the winner of the 1929 Government competition for light aeroplanes at Monticello.

THE ROYAL AIR FORCE

By MAJOR F. A. de V. ROBERTSON, V.D.

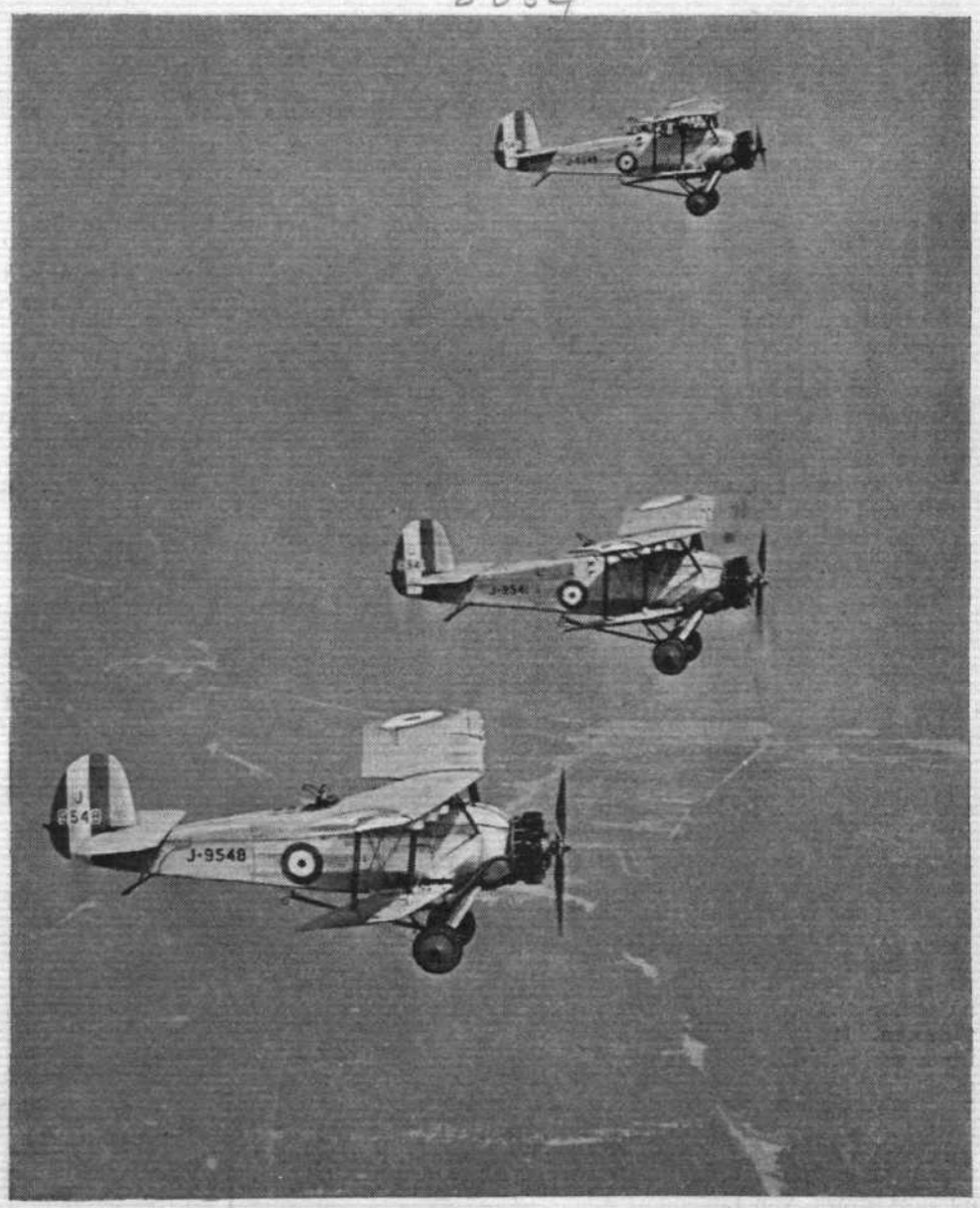
"WE don't want to fight—but, by Jingo! if we do—"
(Old Song.)

RECONNAISSANCE, bombing, spotting for the guns, transport, and fighting—these are the main functions of the Royal Air Force. At the Hendon Display the public sees examples of how these tasks are carried out. It sees the supreme skill of the pilots; it sees something of the capabilities of the aircraft and engines, it sees in particular the pitch of precision to which training and discipline can bring the squadrons and flights of the Royal Air Force. The spectacle is so beautiful that in all probability a great many of the onlookers are content to regard it as a mere thing of beauty, a *tamasha*, a tournament, or, in the former inept title, a "pageant." It is such a delightful summer experience to gaze lazily at the wheeling and diving squadrons, that it probably seems a tiresome effort of a mind attuned to pleasure to inquire the meaning of it all. A squadron of fighters drilling and changing formation recalls the musical ride of the horse gunners at Olympia. The stately flights of night bombers are reminiscent of the tanks. The parade of new types of aircraft, usually bewildering in its diversity, looks to the future as the historical parade at Olympia looks back to the past. The sun, perchance, is shining; the day (also perchance) is hot; the eye is glutted with the beauty of movement, the body is listless, and the brain—why should the brain worry about the meaning of it all? The parachutes are fluttering down like white egrets hovering over a Madras orchard; the enemy's stronghold will soon be blazing merrily. Time enough for exertion when we have to fight our way home.

That, we may feel sure, is not the frame of mind of the foreign attachés as they watch the Display. "A small Air Force," they may remark to themselves "like the Contemptible Little Army of 1914; but as good as were those Old Contemptibles. Where in the world beside could we see such machines, such pilots, such training? And we must not forget that wonderful British power of expansion from a tiny perfect jewel to a thundering machine which can crush the mightiest Powers. It is well to be friends with Great Britain."

Let us arouse ourselves from our languorous enjoyment of the fascinating sight, and try to comprehend the reasons why the foreign attachés are so intrigued by what they see. We shall enjoy the Display all the more if we get a glimpse of the working of the brains behind it all. The days are past when an aeroplane was just a flying machine. There are many types of aeroplane. Why? We most of us know something about the *raison d'être* of a Baby Austin and a Morris Cowley. Why should we not take an equally intelligent interest in the functions of a Bulldog, an Atlas, a Hyderabad, and a Hart? After all, some day our lives, or our children's lives, may depend upon the manner in which these aeroplanes, or their successors, do their job.

In the first place, why have we got a Royal Air Force? It came into existence mainly through the British genius for opportunism, for doing the right thing in an emergency without a very clear perception of whither our steps were



A FLIGHT OF NO. 4 (ARMY CO-OPERATION) SQUADRON. ATLAS AEROPLANES WITH JAGUAR ENGINES.

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AN ATLAS OF NO. 4 (A.-C.) SQUADRON PICKING UP A MESSAGE HUNG BETWEEN TWO STICKS.

leading us. We need not go back to the ancient history of the Air Battalion of the Royal Engineers. That first chapter of development was dealt with in FLIGHT's issue of January 3, 1930, and to that issue we may refer those readers who are historically minded. Suffice it to say that when Great Britain declared war on Germany in August, 1914, our army possessed a Royal Flying Corps, and our navy had a Royal Naval Air Service. The primary function of both was reconnaissance. During the war other functions were developed. Bombing is also a primary function, and this general term includes dropping torpedoes. Fighting is a secondary function, undertaken to prevent the enemy aircraft from doing their work, and likewise to protect one's own bombers and reconnaissance aircraft from the attacks of hostile fighters. Transport is a later development and is also one of the secondary functions.

The term secondary function may not be approved by everyone. There is in particular, a glamour about the fighter squadrons. Their machines fly faster and climb quicker than any others. They are the most beautiful class of aeroplane in the world. They call for handling by pilots with a higher degree of skill than is needed by the slower and heavier machines. When a young pilot officer is passed out by a Flying Training School as suitable for a fighter squadron, he justly feels that he has received the highest possible compliment. His feelings must be much the same as those of an undergraduate who has been awarded a Blue. When war comes, the fighter pilot deliberately seeks for combat while the bombers and reconnaissance aeroplanes avoid it when they can. It is the fighter who piles up a score of enemy aircraft shot down. Bishop, Ball, Manock, Barker, Fonck, Guynemer, and von Richthofen were all fighter pilots, and their glory shall never fade. When von Richthofen was killed by Roy Brown, von Ludendorf said that he had been worth a brigade to the German cause. But when one comes to consider the matter calmly, fighting must always be a means to an end and not an end in itself. Very occasionally the moral effect of an individual fight or series of fights may be greater than the actual material results. It was so, we read, when David killed Goliath. The moral encouragement which von Richthofen's 80 victories gave to the German cause may well have been more important than the actual harm which he did to the work of the British air force. In fact, the fighter pilot satisfies the need which most nations feel for an individual hero whom they can worship. But if the fighters do not seriously hamper the work of the enemy's bombers and reconnaissance machines, their work is largely in vain. A big score in a test match is not of much use unless the match is won. It is only fair to add that very few British fighting pilots have ever been accused of playing for their average rather than for their side, but one or two such cases have been known.

The pilots and observers of reconnaissance and bomber aeroplanes must perforce play for their side, for their individual scores are never kept. They never are credited with marks for bombs dropped plum in the centre of the target, or with destruction of an enemy battery by ranging their own guns directly on to it. Occasionally one hears of an officer who won local fame for such work. In 1916 Capt. A. A. Walser of No. 4 Squadron was known to the gunners as "The O.K. King" for the speed and accuracy with which

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SOME OFFICERS OF NO. 4 (A.-C.) SQUADRON.

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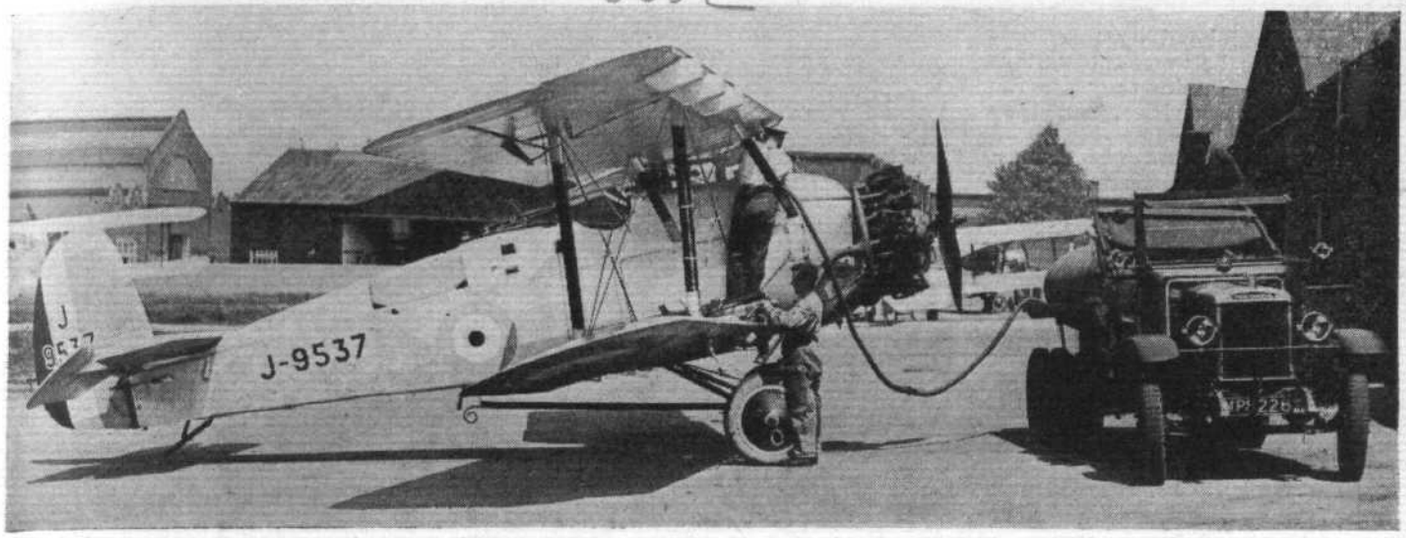

FILLING THE PETROL TANK OF AN ATLAS.

he would get the guns on to their target; but such cases are rare. Silencing the enemy guns makes possible a victory for the army. Bombing the enemy's dumps and factories and aerodromes may make it impossible for him to fight at all. Such work is a direct contribution to the winning of a war. Air fighting is only indulged in to make such work possible. For that reason the Air Ministry in the days of the war refused to publish the names of our successful fighting pilots, as the French and Germans published the feats of their "Aces." The press called it stupid official secrecy, but the real reason was that no such individual honour could be paid to the pilots of the bombers and the reconnaissance machines, whose work was at least as dangerous as that of the fighters, and it would have been unfair to the former to let the fighter pilots have credit which it was impossible for the others to win.

Transport is likewise a secondary function of the Royal Air Force. At times the transport aeroplanes have their crowded hour of glorious life, as when the Victorias and Hinaidis rescued the foreigners from Kabul. More frequently, without advertisement, they save lives by bringing wounded and sick from the outposts to hospital, when the alternative is days of travel across mountain and desert on donkey-back. They also, at times, convey considerable quantities of stores to squadrons in urgent need of them. In general, however, they are known as troop-carriers, which marks them out as essentially intended to perform ancillary services for the Army. The functions of the transport squadrons of the Royal Air Force are likely to increase in number and in utility. They serve already not only their own service but humanity, and though their function must be described as a secondary function of the Royal Air Force, there is nothing derogatory about the term.

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SOME N.C.O.'S OF NO. 4 (A.-C.) SQUADRON.

Serving Three Masters.

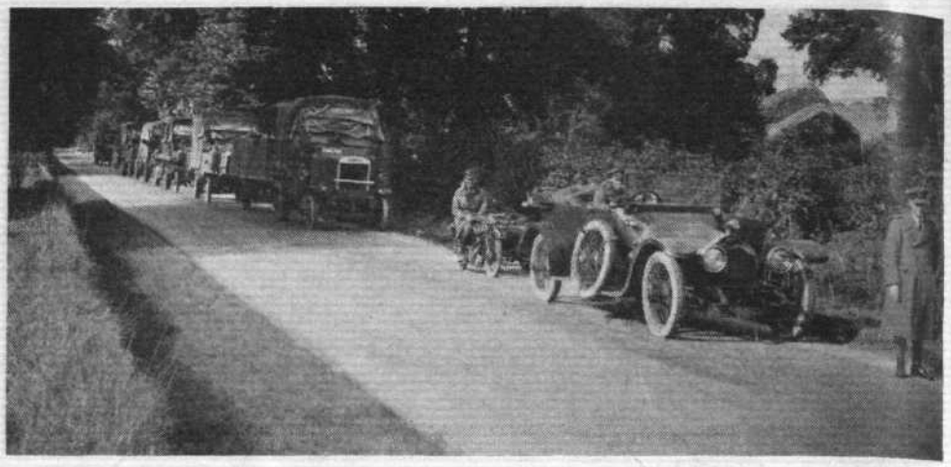
It has been shown above that the Royal Air Force has to perform various functions. It also has to serve three masters, namely, the Royal Navy, the Army, and the Royal Air Force itself. That statement sounds paradoxical, but it is not so in reality. The Royal Air Force serves itself by providing the command known as Air Defence of Great Britain, and by providing for air control in Iraq, Aden, and the Middle East. It serves the Royal Navy by providing the Fleet Air Arm, or at least part of it. It serves the Army by providing squadrons to work with the troops and for the troops in Great Britain and in India. If our defences had reached an ideal state of preparation, which they have not, the aeroplanes which serve each of these forces would be able to perform all their four functions for each of those forces, at least so far as each of those forces desired to have those functions performed. As a matter of fact, the need does not always arise for all four functions to be performed.

Let us first consider the Royal Air Force proper. The command, Air Defence of Great Britain, contains only squadrons of bombers and fighters, with one squadron, No. 24, known as the Communications Squadron. It has no squadrons of transport aeroplanes, for the ground transport in Europe is thought adequate for the purpose. In Iraq and the Middle East it has no need of fighter squadrons, because there are no enemy aircraft there for it to fight. It does need transport in those two commands, and the squadrons of troop-carriers can be used to give a hand to India in an emergency. According to the names given in the Air Force List, the squadrons overseas are all either bomber squadrons or army co-operation squadrons. The troop-carrier aeroplanes are in the hands of so-called bomber squadrons. The actual bomber machines are gradually being supplanted by "general purpose" aeroplanes, and it is not unlikely that before long the army co-operation squadrons will also receive the same type. What the R.A.F. in Iraq and the Middle East needs is a type of aeroplane which can be used for medium bombing, for reconnaissance and for photography, for wireless, and for any other odd job which may turn up, including occasional co-operation with ground troops.

Turning to the services which the Royal Air Force does for the Navy, we find that the needs are reconnaissance and spotting for the guns, bombing and torpedo dropping, and fighting. So far the need for transport has not emerged, but if it does, the squadrons of flying boats will doubtless be able to rise to the occasion. These flying boat squadrons are not part of the Fleet Air Arm, but they do on occasions accompany a fleet to see and work with it. They can, in addition, perform a number of other duties, such as patrol of the coasts and

the seas, and bombing. As connecting links between the various parts of the Empire they are the fastest of all vehicles, and they could take high commanders about the Empire in time of war, even as they have transported civil officials about in time of peace. So far as the diverse functions of aircraft go, the Navy may be said to be adequately provided.

The Army requires air assistance in Great Britain and in India. Taking India first, the ordinary requirements there are bombing and ordinary army co-operation. Fighting, as was pointed out above, is not necessary there because no enemy aircraft are likely to be encountered. Transport has only been needed once, namely, for the Kabul evacuations, and then Iraq was able to supply the necessary aeroplanes in a couple of days. In India, therefore, the squadrons are all either bomber squadrons or army co-operation squadrons. The distinction in the title of the individual squadrons will doubtless be maintained, but it is probable that before long the distinction in the types of machines with which they are equipped will disappear, for both are likely to use the



A SQUADRON'S TRANSPORT ON THE MARCH.

PHOTOGRAPHIC LORRY OF AN ARMY CO-OPERATION SQUADRON.

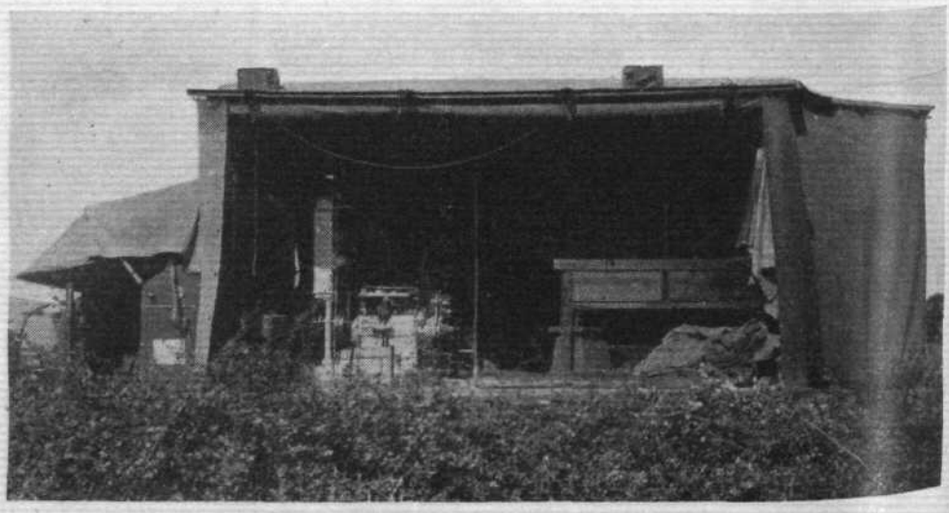
"general purpose" aeroplane. In Great Britain, however, the position is very different and far less satisfactory. The needs of the Army are far more diverse and far greater than in India, but the supply of air squadrons is much smaller. The Army at Home needs specialized aircraft, suitable for nearly all forms of air work. It may not need large transport aeroplanes, but it certainly needs (1) army co-operation squadrons; (2) bombers of more than one calibre; and (3) fighters to protect the rest while they are doing their jobs. At present, it has only got squadrons of the first category, namely army co-operation squadrons. During Army manœuvres the difficulty is got over by borrowing other squadrons from Air Defence of Great Britain, but in time of war this would not be possible, at any rate as a regular practice. It may be taken as universally agreed that any European campaign will open with a war in the air, while the armies are mobilizing. Lord Trenchard once prophesied that during this air campaign the losses of aeroplanes on both sides would be very heavy. One need not tie Lord Trenchard down to the exact figure which he mentioned, but if he is approximately correct it is quite certain that the air defence force will have no squadrons to spare for loan to the Army. The present position of the Army with regard to its air arm is so serious that it can only be justified on the grounds that no European war seems likely to break out in the near future.

The Organization of the Royal Air Force

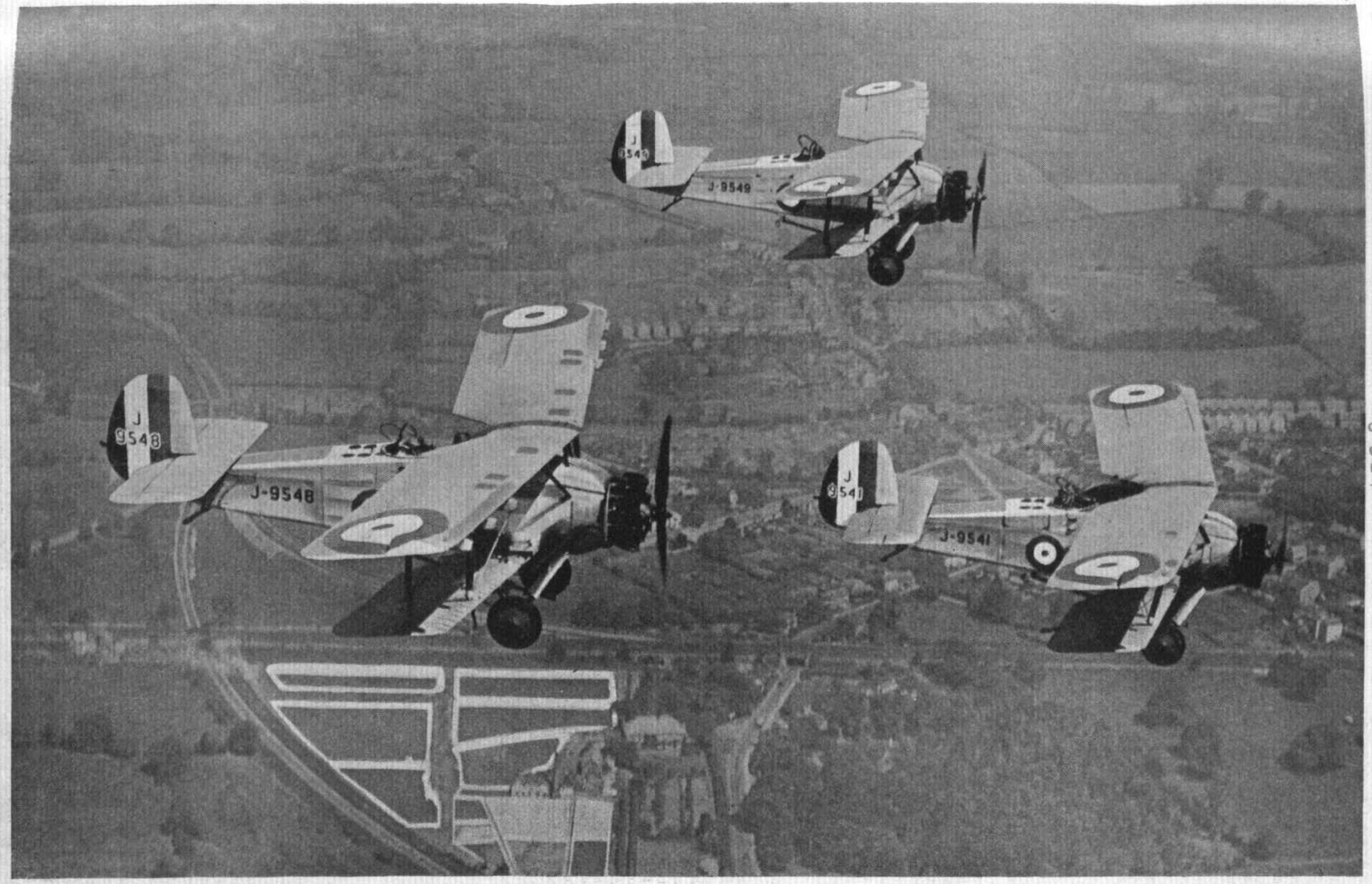
Having considered the various functions which the Royal Air Force has to perform, we may now briefly explain how it is organized so as to provide for the performance of those duties. In Great Britain there are three main Commands, namely: (1) Air Defence of Great Britain; (2) The Inland Area; and (3) The Coastal Area. The first, which is known for short as A.D.G.B., is under an Air Officer Commanding-in-Chief. The first C.-in-C. was Air Marshal (now Air Chief Marshal) Sir John Salmond, K.C.B., C.M.G., C.V.O., D.S.O., who has now become Chief of the Air Staff. He has been succeeded by Air Marshal Sir Edward Ellington, K.C.B., C.M.G., C.B.E., A.D.C., the present Commander-in-Chief. The command A.D.G.B. is divided into two areas, the Fighting Area and the Wessex Bombing Area, and it also includes No. 1 Air Defence Group, which is composed of the squadrons of the Auxiliary Air Force and those squadrons which have a cadre of regular personnel and are brought up to full strength by personnel of the Special Reserve. The Special Reserve, by the way, should not be confused with the Reserve of Air Force Officers, who serve on mobilization with the regular squadrons. The Wessex Bombing Area includes squadrons which live on stations outside the limits of the old Kingdom of Wessex, but the name indicates that in the future there will probably be other bombing areas which may be named after other divisions of the United Kingdom.

The Inland Area consists mainly of schools (such as flying training schools, the School of Army Co-operation, etc.), and stores depots. It also administers the five army co-operation squadrons.

The Coastal Area comprises all the flights which serve on aircraft carriers as the Fleet Air Arm, the flying-boat squadrons, and the schools and establishments which are concerned with sea-going aircraft.



A WORKSHOP LORRY.



A FLIGHT OF NO. 4 (ARMY CO-OPERATION) SQUADRON FLYING IN FORMATION. (FLIGHT *Photo.*)

Army Co-operation

No. 4 (Army Co-operation) Squadron

We have now reached a point at which we can examine in more detail the work of the various branches of the Royal Air Force. It is fitting to start with army co-operation, as that was the first duty which aeroplanes were asked to do in the Great War. We will point our moral and adorn our tale with some account of No. 4 (Army Co-operation) Squadron, some photographs of which, taken by kind permission of the Air Ministry, are used to illustrate part of this issue of FLIGHT. The same kind permission was also granted to obtain the photographs of No. 17 (Fighter) Squadron and No. 33 (Bomber) Squadron, which also appear in this issue.

BRISTOL FIGHTERS PEGGED OUT FOR THE NIGHT.

As its number suggests, No. 4 Squadron, Royal Flying Corps (as it then was) was one of the four squadrons raised by the Army before the outbreak of the Great War. In those days the officers who joined the R.F.C. were only seconded from their regiments, and not permanently transferred to the Corps. No. 4 was formed at Farnborough in September, 1912, from a detachment thrown off from No. 2 Squadron. It was not in those days called an army co-operation squadron, as there then was no idea of allotting separate functions to various squadrons. In fact, many military authorities were very sceptical as to whether aeroplanes would be able to perform any functions at all. The first idea which had been formed as the result of manœuvres, was that aeroplanes would supplant captive balloons and man-carrying kites to give an extensive view of the operations; and, of course, this view was quite natural and very sensible.

The first commanding officer of No. 4 Squadron was Major G. H. Raleigh. The first equipment was five Breguet aeroplanes bought from France, and one Cody, which was a British Army product. Before long, the full establishment of aeroplanes was made up by supplying a number of B.E.'s (British Experimental aeroplanes produced at the Royal Aircraft Factory at Farnborough). In June, 1913, the squadron moved to Netheravon, and while there took part in Army manœuvres. Its everyday work was largely experimental. It made experiments, for example, in flying by night, first using electric torches on the machines to guide the pilots when landing. In the following spring it began to attempt photography from the air.

It was engaged on this useful work when the war broke out. At once two flights of the squadron were moved to Kent to help the Navy in patrolling the coast. On August 13, the squadron, less "C" flight, flew across the Channel to France and landed at Amiens. "C" flight was left at Dover to continue coastal patrols. In its place the squadron had received a very important addition in the shape of a small wireless flight, which later developed into very great things. The two flights, "A" and "B," were equipped with B.E. aeroplanes. On September 9, "C" flight flew over to join the rest of the squadron, bringing with it Maurice Farman Shorthorn machines, fitted with machine guns. In the meantime the R.F.C. had played its part in the retreat from Mons, working with great assiduity and gallantry to keep Army H.Q. informed of the progress of events. The first efforts were not altogether successful, but mention should be made of a very important flight by Capt. Shepherd and Lieut. (now Air Commodore) Bonham-Carter, on August 24, which saw the 2nd Corps of von Kluck's army moving to the left of the Allies' flank. During the Battle of the Marne, one of the wireless machines of the squadron did very good work in sending back prompt reports. Lieuts. Lewis and James of the wireless flight soon made a great reputation, and by the time the battle of the Aisne was in progress their services were in great demand to observe for the artillery and send corrections to the batteries by wireless. Artillery observation was a novel branch of army co-operation work, and it was developed at a very early stage of the war. In October, 1914, this wireless flight became the nucleus from which grew later all the extensive wireless developments of the R.F.C.

Fighting also began to develop in the autumn of 1914, and the Maurice Farmans of No. 4, with their machine guns were the first machines of the sort to arrive in France. This type was selected because it was easy to fit a machine gun on it, but it was among the slower types of aeroplane, which made it especially unsuitable for air combat. Bombing in a rudimentary form also began in those early stages, the pilots dropping bombs overboard with their hands. In January, 1915, Major Raleigh led three machines to bomb Ghistelles, and the result was believed to be good. An early instance of "ground-straafing" took place in October, 1914, during the first battle of Ypres, when Lieut. G. N. Humphreys of No. 4 attacked an enemy convoy on a road and fired 250 rounds into it. January, 1915, also saw a beginning of formation flying by the squadron. Before the battle of Neuve Chapelle, in March of that year, the whole front of the enemy was photographed by No. 4 and the other squadrons of the R.F.C., and the maps made from their photographs were of the greatest assistance to the infantry in the attack. The battle of the Somme in 1916 saw the beginning of contact patrols, when the aeroplanes watched the forward progress of our troops during the attack and sent prompt reports to H.Q. Such reports were very valuable to the staff, and, in particular, prevented the most distressing of all casualties, namely, those inflicted by our own guns on the advancing infantry. In May, 1917, the squadron was equipped with R.E.8 machines (Reconnaissance Experimental) which

"B" FLIGHT, NO. 33 (BOMBER) SQUADRON. NAMES OF THE CENTRE ROW FROM LEFT TO RIGHT:—SERGT. SLADE, P./O. A. C. LARMUTH, FLIGHT SERGT. DALTON, FLIGHT LIEUT. R. J. SANCEAU, SERGT. TOMKINS, 2ND LIEUT. TAIE (IRAQ ARMY).

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OFFICERS' MESS, EASTCHURCH.

remained their standard equipment until the end of the war. The name of the type shows that aeroplanes were becoming specialized for certain duties, and the functions of a squadron were those for which their machines were designed. No. 4, therefore, ended the war as an army co-operation squadron, though it did not bear that title.

After the war, the squadron was reduced to cadre strength and sent home. In the spring of 1920, it was reformed at its first aerodrome, South Farnborough, and became a definite part of the new Air Force, in which all the personnel were regular. It is still stationed at South Farnborough, and is now definitely allotted to army co-operation work.

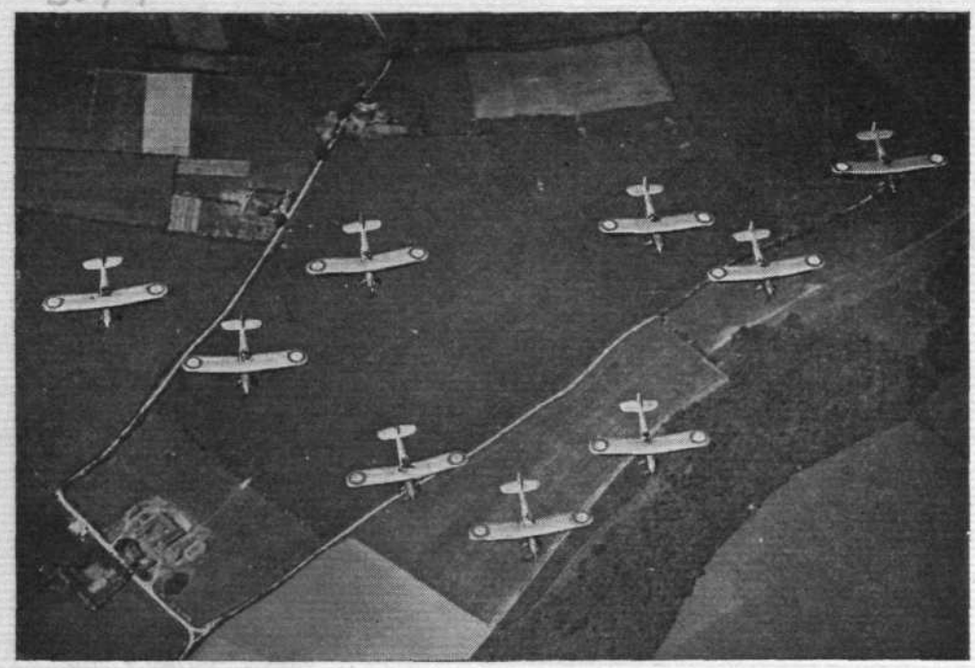
Army co-operation work now includes most of the operations which this squadron was among the first to develop during the war. Some of them are illustrated by our photographs. For operations, the squadron takes its orders from the Army command to which it is allotted. In the early part of the summer, one flight may be allotted to an infantry brigade. It will reconnoitre the ground and, if necessary, photograph it. It must be adept at dropping messages for any given party of infantry. It must also be able to pick up messages which the infantry attach to a string stretched between two rifles stuck into the ground. For this purpose a special hook is suspended underneath the fuselage of the aeroplane. At another period the same flight may work with a brigade of artillery, observing the fall of the shells and sending corrections by wireless to the batteries. In divisional manœuvres the whole squadron works together. During the summer the squadron also goes to a practice camp, at Larkhill on Salisbury Plain, or elsewhere, and practises shoots at ground targets with live ammunition. In every way the squadron has to work in the closest touch with the Army. It must understand all the problems and difficulties which face an Army commanding officer from a lieutentant-colonel up to a lieutenant-general, and it must study how to help in the solution of them. Military officers, through this close contact with the air squadrons, learn by degrees what an aeroplane can reasonably be expected to do, and what is beyond its powers.

For many years after the Armistice, the Army co-operation squadrons were equipped with the Bristol Fighter. Their machines must of necessity be two-seaters, and both pilot and rear gunner are kept very busy with all the various tasks which have to be carried out. Some people think that three-seaters would be more suitable. The Bristol Fighter was at one time a two-seater fighter, but afterwards it was not used for fighting at all, and was consigned to this special Army work. Lately, it has been supplanted by the Armstrong-Whitworth Atlas with Armstrong-Siddeley Jaguar engine, and this is the machine shown in the photographs. This machine is intended to do well nigh everything except to seek for air combat. It has one Vickers' machine gun firing forward, which is needed chiefly for attacking ground troops. It has also a Lewis gun on a Scarf ring in the rear cockpit, which the rear gunner can use against enemy aircraft. But a machine designed for Army co-operation work would not have much chance against an enemy single-seater fighter. If enemy fighters appeared on the scene, our Army co-operation machines would need protection from our own fighters. But, with machine-gunning, bombing, photography, wireless, picking up of messages, dropping messages, occasional formation flying, etc., the life of an Army co-operation squadron is very full indeed.

FASTENING BOMBS ON A BOMBER FOR A RAID.

BOMBING
No. 33 (Bomber) Squadron

The best form of defence, we are often told, is attack. Like many other general statements, it is open to misuse, and it is not generally conceded that Germany's invasion of Belgium and



NO. 33 (BOMBER) SQUADRON FLYING IN "SQUADRON FORMATION."

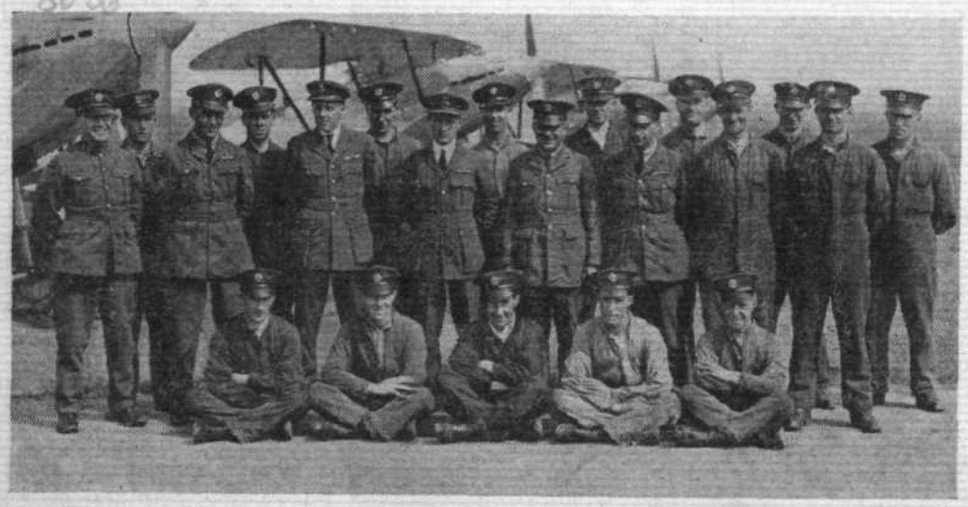
France in 1914 was a purely defensive measure. But when a country finds itself involved in war against its will, it is usually well advised to assume a strategic and tactical offensive. There is plenty of justification for the somewhat irreverent old doggerel jingle :—

"Thrice is he blest who hath his quarrel just,
But four times he who gets his shell in fust."

In the two summers of 1927 and 1928, air exercises were held by A.D.G.B. to test the progress made in the scheme for protecting London from air attack. In these exercises the bomber squadrons had perforce to play the part of the enemy, and the good people of London were not a little disturbed to find how often they got through the defences and dropped imaginary bombs on their objectives. As a matter of fact, the results were very artificial, so far as successes and losses were concerned. If much weight could be attached to the decisions of the umpires, the losses given against the bombers were far more disturbing than the successes allowed to them. For, according to one school of thought, in real war the bombers will be our first line of defence. They will defend by attacking the enemy. To say that, is not to admit that they will indulge in wanton slaughter of civilians in the residential parts of enemy towns. To do so would not only be the greatest of all crimes against civilization, but would certainly provoke reprisals upon our own towns, which we should naturally not wish to do. In fact, to bomb residential suburbs when there were aerodromes, ammunition dumps, and arsenals undestroyed, would be a waste of good bombs. Obviously, the first duty of our bombers must be to do all in their power to rob the enemy of his power of damaging us. The logical frame of mind during air exercises is to back the bombers and rejoice at their power of finding their way through the defences and dropping their bombs plumb on the target. If the scheme decrees that London shall be attacked, then London must be looked on as the capital of the enemy's country. London, of course, is not merely a residential town. It swarms with factories, etc., which are legitimate targets for attacking bombers, and during the air exercises every raid was ordered to attack a target of military importance which the gunners would rightly shell if their shells could reach it. The bomber aeroplane is essentially a long-distance howitzer.

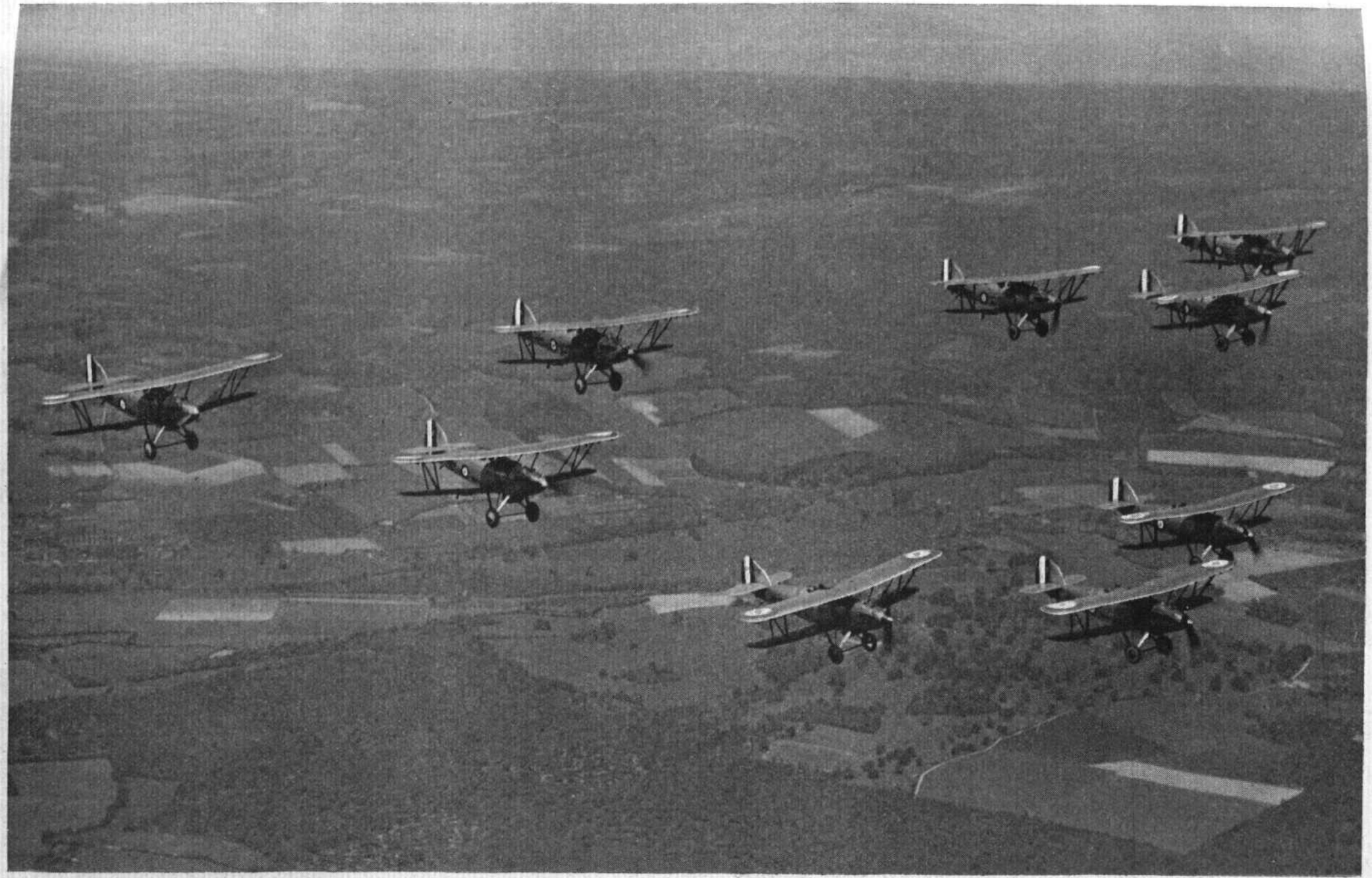
Bombers are divided into day-bombers and night-bombers. The former (with the exception of No. 101 Squadron) use single-engined aeroplanes. The latter invariably employ twin-engined machines. Night bombing is usually carried out by single machines. In the darkness, formations give no protection, but do cause risk of collisions. A formation makes more noise than a single machine and so attracts more attention. There is also more chance of the searchlights picking up a formation, and when the lights have caught a night-bomber in their beams, that bomber should be in parlous case. Modern night-bombers usually carry a load of 1,000 lb. of bombs.

The problems which confront day-bombers are quite different from the problems of night bombing. A day-bombing aeroplane is usually one with a single engine, and it usually carries 500 lb. of bombs. The day-bombers fly in formation, both for protection and to multiply the weight of bombs destined for the target. They are two-seaters, and the gunners in the rear cockpits protect each other's machines by the cross-fire of their machine guns. If a single machine breaks formation when attacked by hostile fighters, its chances of surviving are not very rosy. A bomber does not seek air combat : it tries to avoid it. When attacked, the formation pursues its way to its objective, trusting to the fire of its machine guns to drive off the assailing fighters. Therefore, a bomber need not be able to perform aerobatics, as a fighter must be able to do. But it does need speed. In a well-organized system of defence the news of the approach of a raid is reported with such rapidity, and the defence measures are taken with such promptitude, that the only chance for the bombers is to get through faster than the proverbial speed of bad news.

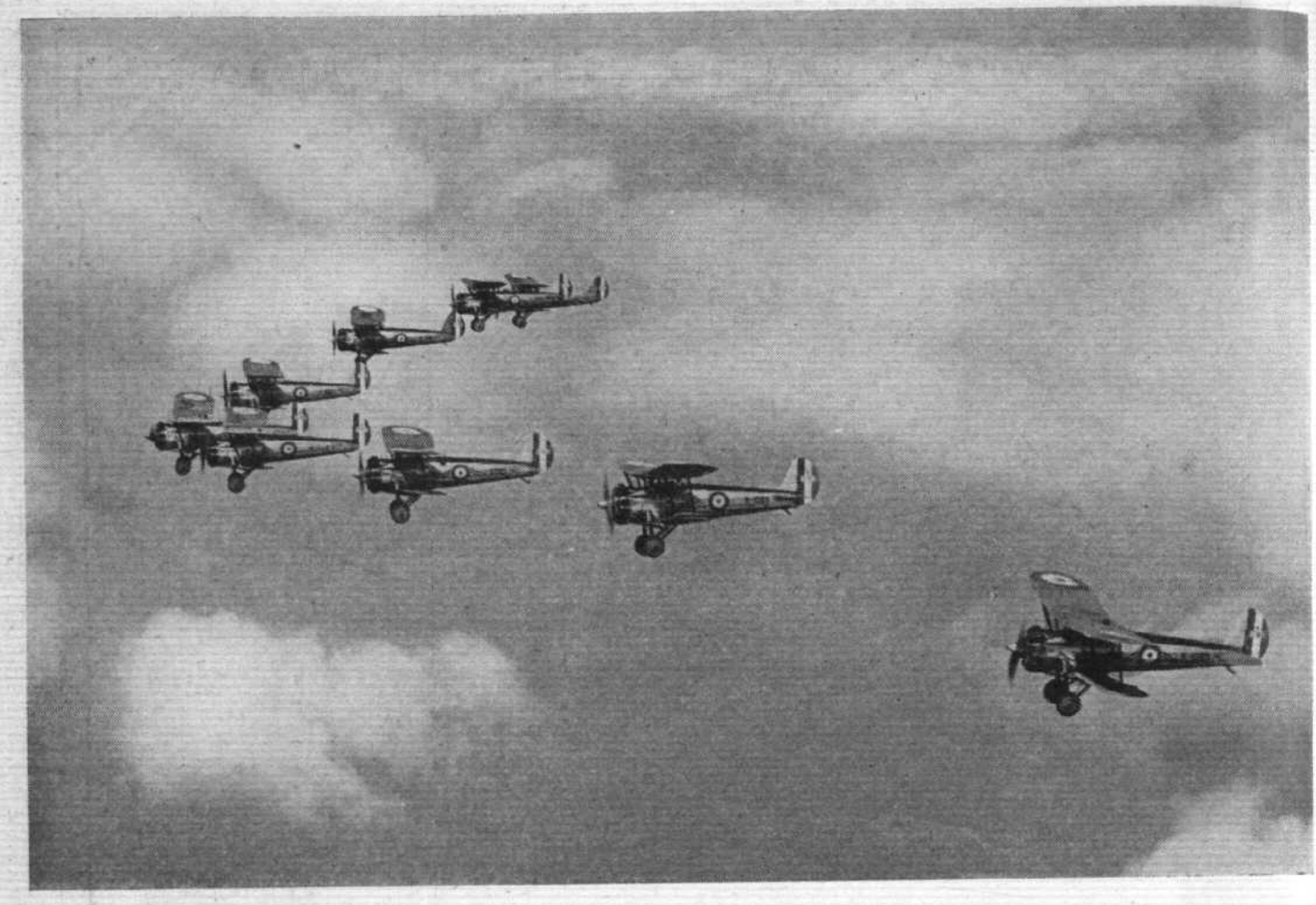


"C" FLIGHT OF NO. 33 (BOMBER) SQUADRON. NAMES OF THE CENTRE ROW FROM LEFT TO RIGHT:—CORP. WADDINGTON, SERGT. SKINNER, F./O. C. S. JOHN, F./O. R. O. O. TAYLOR, FLIGHT SERGT. PEARCE, SERGT. RICHARDSON, CORP. KNOWLTON, CORP. KAY.

There are two schools of thought about the best tactics for day bombers. One school says that they should fly very low, and the other that they should fly very high. The advantages of low flying are that they will not be seen from far off or heard from far off. They are likely to arrive ahead of the reports of their progress. Anti-aircraft guns will not be able to get a bead on them before they are out of sight. If it is dusk, the searchlights will not be able to find them. If fighters happen to see them, they will find it hard to harm them so long as they are close to the ground. The fighter needs room for manœuvre in all directions. The low-flying bombers will be immune from all attack except that of machine guns. But in the event of an engine failing or being hit by bullets, the bomber would have no chance of escaping a disastrous crash. On the whole, service opinion prefers that the



NO. 33 (BOMBER) SQUADRON FLYING IN "SQUADRON FORMATION." THE MACHINES ARE HARTS WITH ROLLS-ROYCE "F" ENGINES. (FLIGHT *Photo.*)



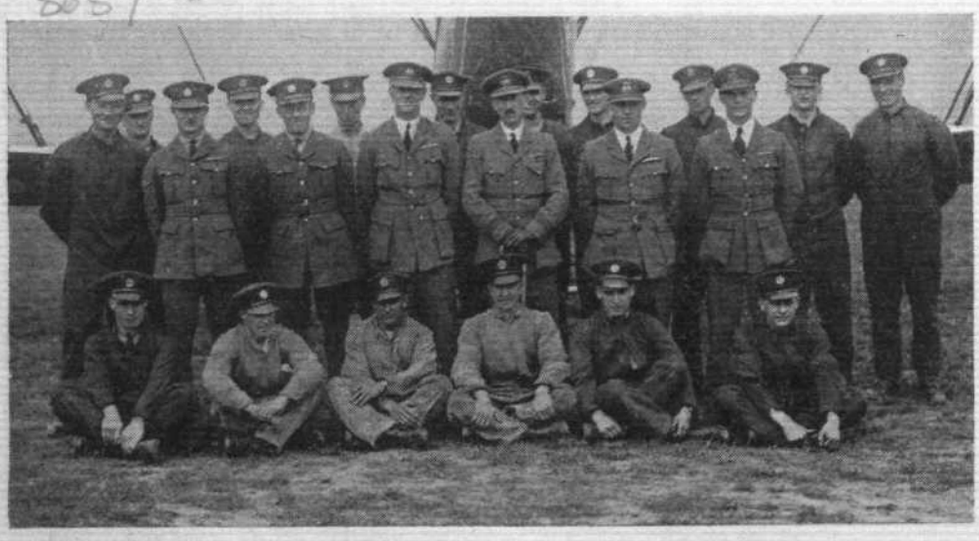
NO. 17 (FIGHTER) SQUADRON FLYING IN "SQUADRON V" FORMATION.

bombers should fly high. The machines, therefore, must have a good ceiling and high speed at great height, while carrying their full loads of bombs.

To produce a day-bomber aeroplane which our own fighters will find it really difficult to catch, and which, therefore, can expect to outstrip all hostile fighters, has for long past been the aim of many of our aircraft firms. The very latest word in day-bombing machines is the Hart, designed and built by the H. G. Hawker Engineering Co., Ltd., which is driven by the Rolls Royce "F" type engine of 490 h.p. This aeroplane has a truly remarkable performance. Its top speed is in the neighbourhood of 180 m.p.h., but when about to land it can fly as slowly as 55 m.p.h. without danger of "stalling," a word which means losing flying speed.

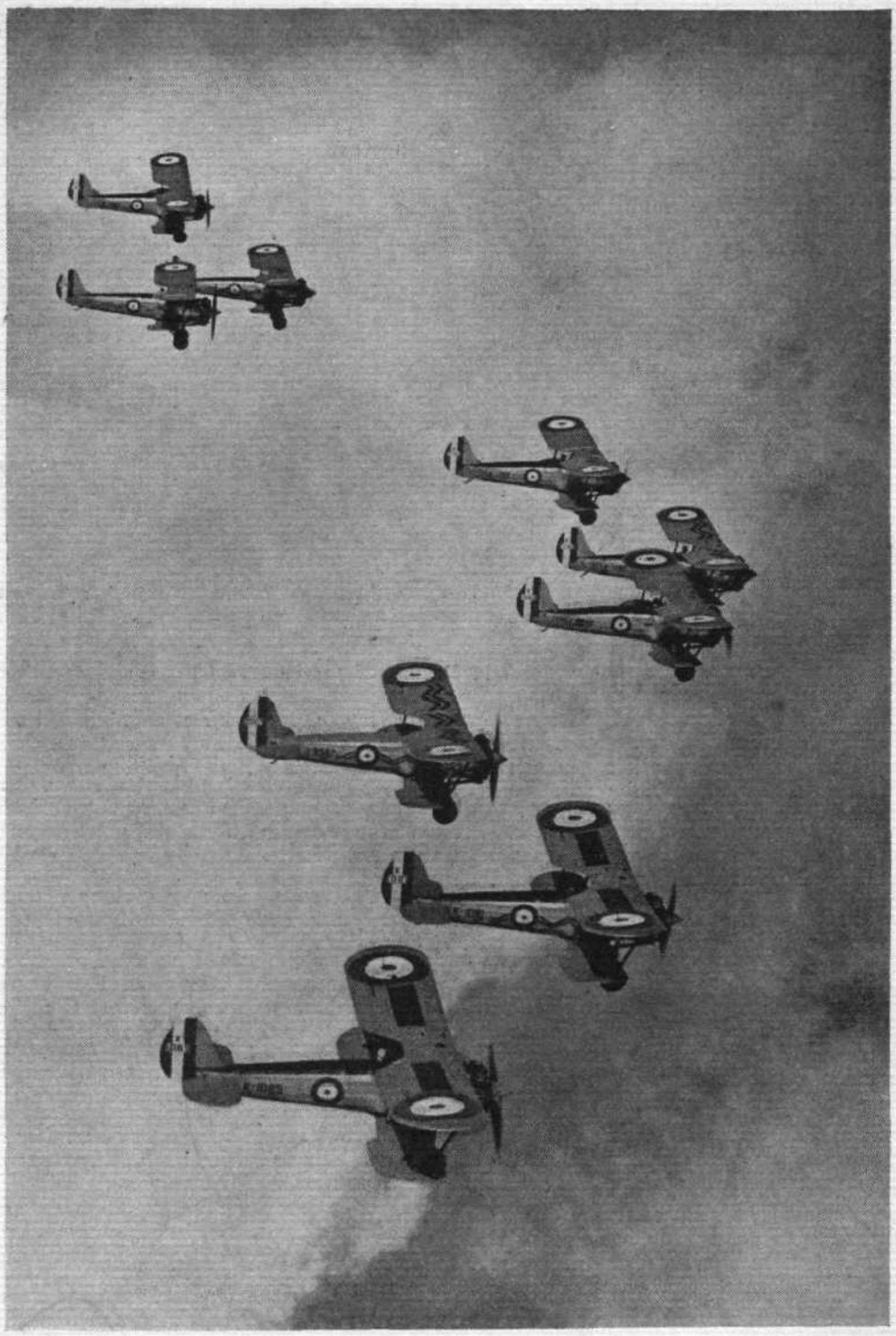
At present, only one squadron has been equipped with Harts, namely, No. 33 (Bomber) Squadron, which is stationed at Eastchurch aerodrome in the Isle of Sheppey, Kent. The history of No. 33 Squadron is quite different from that of No. 4 Squadron, which was outlined above. During the war, No. 33 was what was then known as a Home Defence Squadron. It was raised at Filton, Bristol, in January, 1916, the nucleus being provided from No. 20 Squadron. The first C.O. was Major (now Air Commodore) P. B. Joubert de la Ferté. The squadron was stationed on the north-east coast, in order to protect Leeds, Sheffield, and other important manufacturing towns from raiding German aircraft. It was equipped with B.E.2.C. aeroplanes which were becoming obsolescent at that time. They were slow, and they could not climb high enough to have much chance of catching a Zeppelin. The squadron practised night flying, and its pilots grew expert at that hazardous operation. Many fine flights were made, serious risks were run, and some lives were lost, in repeated attempts to catch Zeppelins when they crossed the coast to raid the northern towns. No. 33 was not fortunate enough to register a "bag," but it had the satisfaction of knowing that when the Zeppelin captains knew that aeroplanes were up looking for them, the knowledge usually upset their plans. The Zeppelins knew that if an aeroplane, armed with incendiary bullets, got within range of them, their fate was sealed. They would usually climb high, turn and twist about, and often drop their bombs hurriedly, where they did little harm.

After the Armistice, the squadron was disbanded. It commenced to reform at Netheravon, on March 1, 1929, as a bomber squadron. Its first C.O. in its new incarnation was Squadron-Leader F. P. Don. Its equipment was the Horsley



"A" FLIGHT OF NO. 33 (BOMBER) SQUADRON. NAMES OF CENTRE ROW LEFT TO RIGHT:—CORP. MACKEN, SERGT. JOHNSTONE, FLIGHT SERGT. WILTS, FLIGHT LIEUT. T. W. S. BROWN, SQDN. LDR. J. J. BREEN, PILOT OFFICER L. McHARDY, P./O. G. D. HOYLAND.

bomber with 650 h.p. 'Condor' engine—another combination of the efforts of the Hawker and Rolls Royce firms. In due course the squadron was moved to Eastchurch, the very first aerodrome to be established in Great Britain. It was originally the property of that fine pioneer, Francis (now Sir Francis) McClean, who presented it to the Government. It was at Eastchurch that Moore-Brabazon made a flight for the first time on a machine built in England—by Messrs. Short Bros., Ltd.—and it was at Eastchurch that the first four naval officers were taught to fly as part of their official duties. Last February, the Air Ministry commenced to re-equip this squadron with Harts, and the operation was completed by the end of April. This is an instance of quick action which is equally creditable to the Air Ministry and to the constructing firms. It is also extremely creditable to No. 33 (Bomber) Squadron that when representatives of FLIGHT recently visited Eastchurch, they were able to parade the full complement of 12 machines before our photographer. A photograph of this parade appeared in our issue of June 13. The present issue shows the squadron flying in formation. Two different formations are shown. "Squadron Formation" is when each flight forms a broad arrow of three machines, while the whole squadron forms a broad arrow of three flights. "Squadron V" shows the flight formations broken up, and the whole squadron forming a "V" of nine machines. These photographs illustrate the beautiful accuracy which No. 33 B.S. has attained in formation flying. Under the command of Squadron-Leader J. J. Breen, it is evidently a squadron worthy of the splendid aeroplane and engine with which they are equipped.



NO. 17 (FIGHTER) SQUADRON IN "SQUADRON FORMATION."

FIGHTING

No. 17 (Fighter) Squadron

Fighting was described above as a secondary function of the Royal Air Force. It is none the less a vitally important function. Fighter squadrons are always essentially protective squadrons, though their tactics in action are invariably aggressive. In the war they had to protect our reconnaissance and bomber aeroplanes from the attacks of enemy fighters, and they had to protect the ground troops from the attentions of enemy bombers and reconnaissance machines. Their work was essentially Army air work, and until the last few months of the war they belonged to the Royal Flying Corps, Military Wing. Even after the formation of the Royal Air Force, on April 1, 1918, the fighters (or Scouts, as they were then called, though the name was most inappropriate) continued to do Army work. Now, as we have pointed out, the Army has no squadrons of fighters allotted to it. There are squadrons of fighters (in fact, a whole area of them) belonging to Air Defence of Great Britain, and there are numerous flights of Fleet Fighters in the Fleet Air Arm. Both classes of fighter will be seen in operation in the Display at Hendon this year.

The work of the Fighting Area of A.D.G.B. is somewhat different from that of military and naval fighters. The Fighting Area will not usually be asked to defend other classes of aircraft, though such work may turn up incidentally. Its true function is to attack enemy bombers which may cross the coast to attack Great Britain. For such work long endurance in the air is not necessary. For a normal fighter, tanks to carry fuel for a flight of about 2½ hours are sufficient. The new class of "interceptor fighters" require even less endurance than that. What is asked of a fighter is that it should be able to climb high very quickly, and have good speed and manœuvrability at great height. Its armament must be very good. The two machine guns fire forward, and are timed so that the bullets pass through the circle of the whirling propeller without ever hitting the blades. They must be so placed that the pilot can easily clear a jam. The pilot aims his guns by aiming the whole aeroplane. The fighter should be both faster and quicker to manœuvre, as well as quicker on the climb, than any aeroplane which it may attack. When the great von Richthofen engaged Maj. Lanoe Hawker, V.C., the pilots were probably equal in skill, but the Albatros which the German was flying had a rather better climb than the Englishman had, and the result was that von Richthofen killed Hawker. When, over a year later, Roy Brown killed von Richthofen, the action showed the necessity of very delicate controls in a fighter. The Baron, in a Fokker triplane was pursuing a British machine when Brown in a Sopwith Camel got on his tail. The first bullets from the Vickers gun hit the fuselage of the Fokker, and Brown had delicately to move his whole machine so as to bring his fire on to the German pilot. The Baron evidently felt that his machine was being

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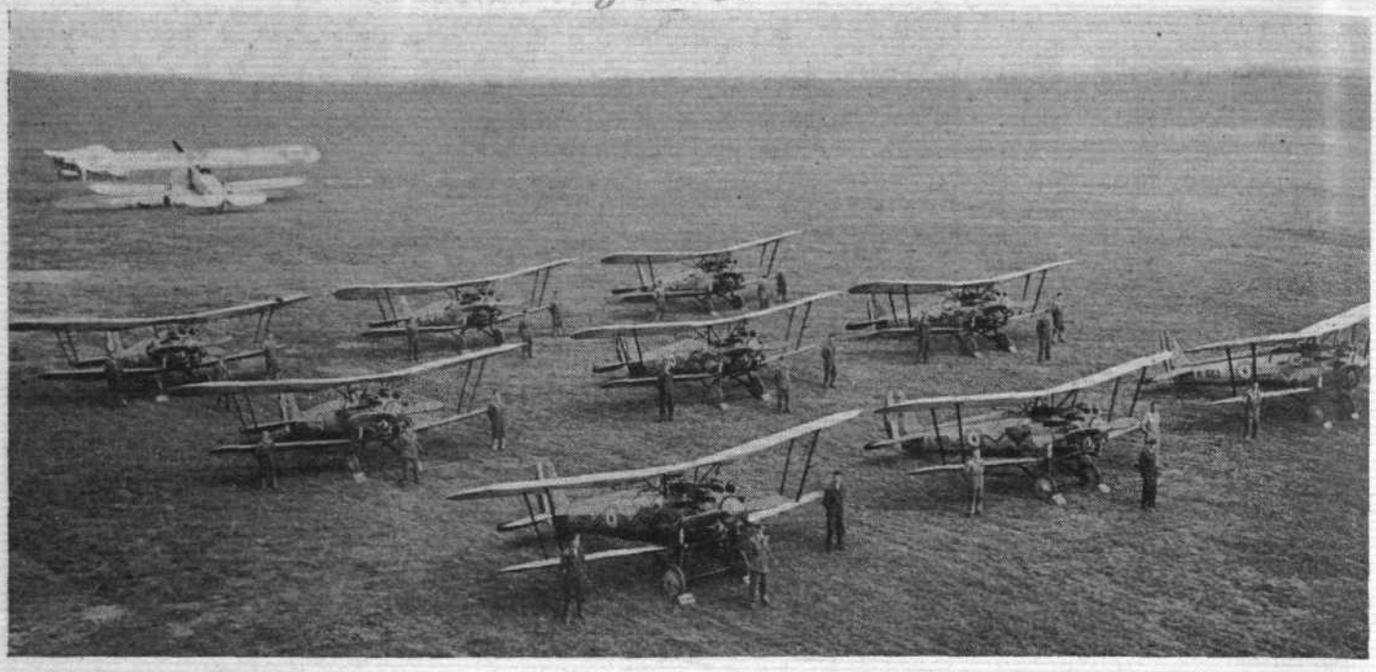

THE BULLDOGS OF NO. 17 (FIGHTER) SQUADRON.

hit and turned in his seat to look over his shoulder. At that moment, according to the doctors who examined the Baron's body, a bullet hit the German in the back and pierced his heart. The Camel with engine full out in a dive may have been doing 150 m.p.h. One can imagine the delicacy of touch needed to steer the stream of bullets up from near the tail of the Fokker until they got to the bull's-eye on the pilot's heart. A fighter aeroplane must make it possible for a pilot to do that sort of thing.

When a fighter engages a single seater it tries to get behind it—above for preference, but, failing that, the position under the enemy's tail will serve. The single seater, of course, is blind to its rear. When there is a gunner in the rear seat of a two-seater, the task of the fighter is more risky. In war-time machines a two-seater could guard itself by fire above its tail, but could not touch an assailant under its tail. In the latest two-seaters, however, there is often a gun port for firing down below the tail. A fighter pilot must take risks, however, and he knows that his rapidly-manœuvring machine is a harder mark to hit than is a bomber flying steadily on its way in a formation. As he dives on to the tail the engine, especially a radial air-cooled engine, forms a shield which covers nearly all his body. His moment of greatest danger is when he turns at the end of a dive, and at that moment he needs protection from the fire of another fighter coming up in his wake.

A fighter squadron goes out to fight in "squadron formation," namely, a triangle of flights, and each flight a triangle of three machines. Each flight in the squadron, and each machine in each flight, may be "stepped up" behind the leader. This formation gives the best protection to the squadron leader, who leads the formation in the first machine of the foremost flight. It also leaves each machine free from the slip-stream of the machines ahead of it. Other formations are also practised, and our illustrations show No. 17 (Fighter) Squadron in "Squadron Formation" and also in "Squadron V."

On the outbreak of war the squadrons of Air Defence of Great Britain would not move their headquarters overseas. The army squadrons might do that, but not A.D.G.B. The work of the Fighting Area is to send up squadrons when reports come in of enemy raiders crossing the coast. The reports come from watchers with sound-locators along the coast, who rapidly telephone to H.Q. Fighting Area the progress of each raid. If the raid takes place by day the anti-aircraft batteries try to hit the raiders when they can sight them. By night the searchlights try to catch the raiders in their beams and show them up to the ground gunners and to the fighter aeroplanes. In either case, each squadron of fighters has a special sector in which to work. On the first news of a raid the squadrons in the appropriate sectors are ordered up. Their machines are standing ready on the aerodrome. The engines are hurriedly started, the pilots, waiting ready in their flying kit, run to their machines. A really smart squadron will have all three flights off the ground in about three minutes. The flights take up formation in the air, and the squadron patrols its sector, looking for a sign of the raiders. The machines are equipped with wireless, and even after they are up in the air they can receive the latest reports. A squadron does not leave its sector unless it has got within range of the enemy. Otherwise, it must let the defences of the next sector do their best.

Quite recently the Air Ministry has developed a new class of fighter, called an "interceptor fighter." This is not intended to do a patrol of over two hours. It does not carry enough petrol for that. It saves on weight of fuel to gain in rapidity of climb and performance at great height. When the reports say that the raiders are near at hand, the interceptors can still dash up into the air with a good chance of catching them, and, if they find them, of overtaking them and shooting them down. Some specimens of

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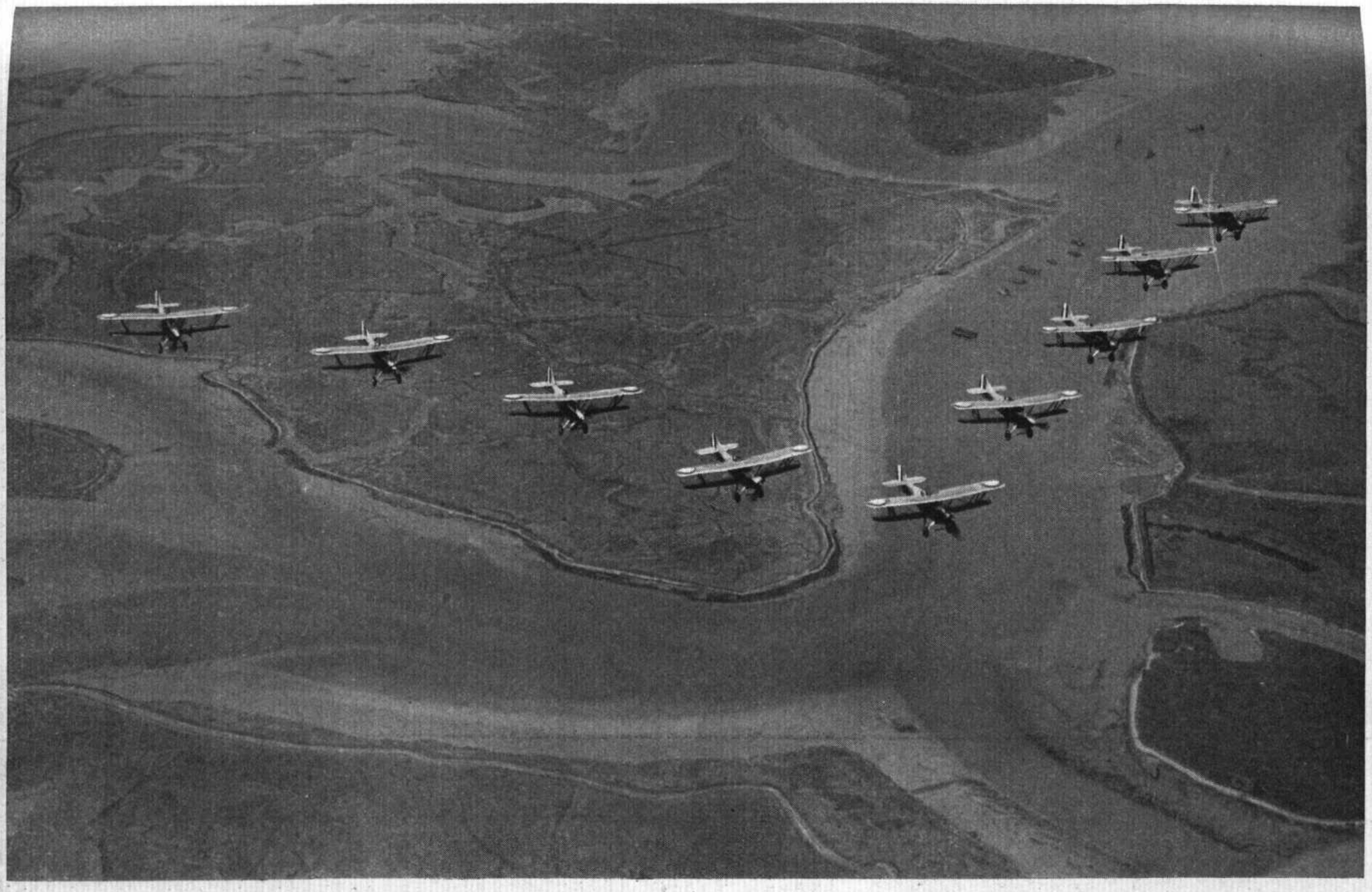
FILLING THE TANK OF A BULLDOG.



NO. 33 (BOMBER) SQUADRON FLYING IN "SQUADRON V" FORMATION. (FLIGHT *Photo.*)

A SOUND-LOCATOR WHICH DETECTS THE APPROACH OF ENEMY RAIDERS.

interceptors are on show at Hendon this year, but no squadron has yet been equipped with machines of that class. In fact it is only recently that the Air Ministry decided to select the Hawker Hornet with Rolls-Royce "F" engine as the standard type of interceptor fighter.

Of the ordinary fighters three types are now in service use. The Gamecock is still used by one squadron, and for certain purposes it is still a very fine aeroplane. But it is made of wood, and is now considered out of date. The Siskin and the Bulldog are metal machines. The Siskin is still the equipment of most of the fighter squadrons; but the Bulldog is the latest thing in ordinary fighters. So far only three squadrons are equipped with Bulldogs—Nos. 3, 17 and 54 F.S. Our photographs illustrate No. 17 (Fighter) Squadron.

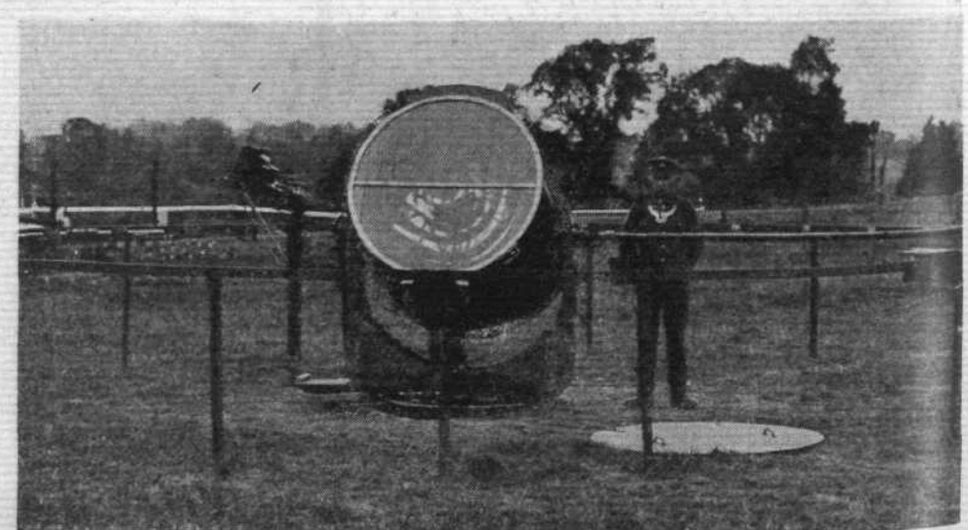
The Bulldog and its Jupiter engine are both products of the Bristol Aeroplane Co., Ltd. The Jupiter is famous all over the world, and is used in very many different types of aeroplane. The Bulldog is an excellent fighter aeroplane in every way. Its virtues may be summed up by saying that the higher the altitude at which the fight takes place, the more easily will the Bulldog outclass any enemy which it may meet. It is only about a year since Bulldogs were first issued to any squadrons. At the Display last year a couple of flights of No. 3 F.S. appeared at Hendon, but they were not allowed to show off the powers of their new machines. Now, as our illustrations show, the Bulldog squadrons can work in formations as perfect as anything ever seen before.

No. 17 Squadron has a history different to that of the other two squadrons with which we have dealt in this issue. Whereas No. 4 served in France throughout the war, and No. 33 served in England, No. 17 served in Egypt and on the Salonika front. Of the many gallant pilots who served with it, the most famous was Hesperus A. Van Ryneveld, the South African, who was made a Knight Commander of the British Empire for making the first flight from North to South Africa. He now commands the South African Air Force. Wing Commander G. W. Murlis-Green, D.S.O., M.C., was also a lieutenant in No. 17. The squadron was formed at Gosport in February, 1915, and by November of that year it and No. 14, forming the 5th Wing under Lt.-Col. (now Air Marshal Sir Geoffrey) Salmond, sailed for Egypt. The whole wing was there distributed into flights and even half-flights, watching 500 miles of Egyptian frontiers. Lieut. Van Ryneveld took a half-flight of No. 17 to the eastern frontier to watch the Senussi, which relieved the military authorities of considerable anxiety, as it was not an easy matter to establish a post for troops out in the desert. One flight of No. 17 took part in the Darfur expedition and the battle of El Fasher. The aircraft received high praise from the Sirdar for their work in this expedition.

In July, 1916, the squadron moved to Salonika, and in the autumn it received a number of B.E.12 machines, which were considered the best aeroplanes on that front. The enemy were better equipped, having Roland, Albatros, and Aviatik types, but the British pilots found them reluctant to engage in air combat. Then the enemy brought a special bombing squadron of 18 machines to this front. It included Halberstadt scouts, twin-engined A.E.G.'s, Rumplers, Friedrichshafens, and even one Gotha. This formidable squadron bombed Salonika, and established a superiority in the air for a time. To meet it, a composite fighting flight was formed under Capt. F. G. Saunders of No. 17. This step met with rapid success. In a fight on March 18, 1917, the enemy formation was broken up, and in the pursuit, Capt. Murlis-Green destroyed one twin-engined machine and forced another down. The aerodrome at Hudova was then incessantly raided until it was reported that this enemy squadron had been recalled to the Flanders front. At this time, No. 17 was working with No. 47. Squadron as the 16th Wing. In the summer of 1918, No. 17 received Armstrong-Whitworth machines with 160 Beardmore engines as its standard equipment. In September of that year, the final advance began. General Sir. G. F. Milne wrote of the machines of the 16th Wing:—"They bombed the Bulgar columns and shot down men and animals with their machine guns, causing heavy casualties and a confusion that bordered on panic."

On November 14, 1919, No. 17 Squadron was disbanded. It was subsequently reformed at Hawkinge under Sqdn.-Ldr. J. Leacroft, M.C. It is now stationed at Upavon on Salisbury Plain, and its present C.O. is Sqdn.-Ldr. R. Harrison, D.F.C. Being equipped with the very latest type of fighter, the Bulldog, it may be considered at the moment one of the most formidable units in the A.D.G.B. command.

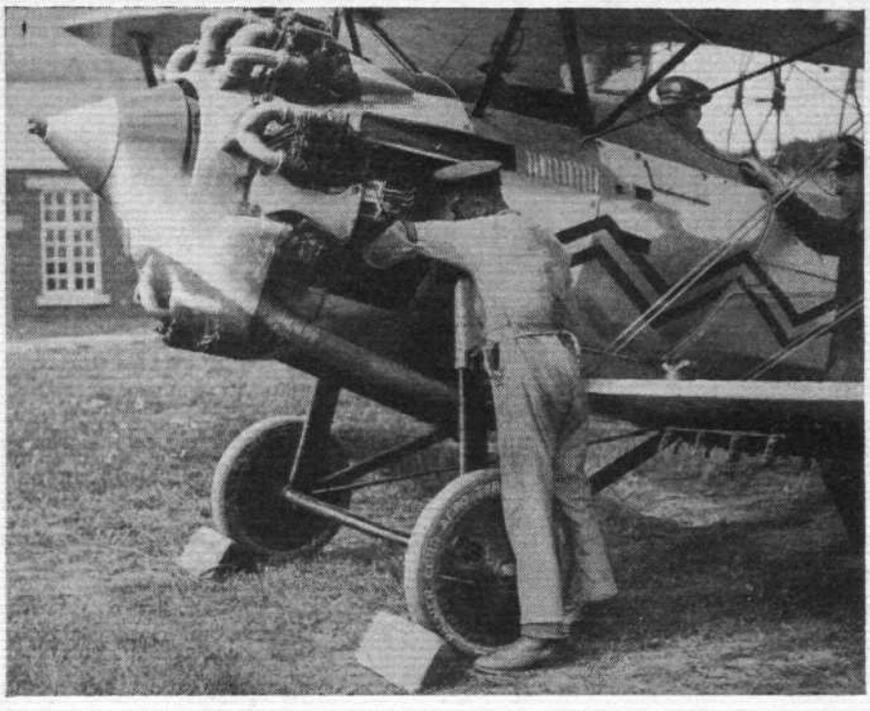
This account of the work of the Royal Air Force is of necessity only a cursory review. It deals only with the units which fly. It has made no mention of the elaborate organization which has been set up on the ground. It is almost a truism to say that every flight starts from the ground and ends on the ground, but many people are apt to forget that good work in the air is well nigh impossible without equally good work on the ground. The airmen of the Royal Air Force are a splendid body and no praise can be too high for them. Nor ought we to forget the unobtrusive, indispensable work of the officers of the stores branch and the accountant branch of the service. The research and experiment carried out at the various R.A.F. establishments plays a most important part in ensuring that the service gets the best aeroplanes in the world; while the Aircraft Inspection Department keeps the construction up to the standard of the design. All deserve honour, for all do their part in making the Royal Air Force the best service of its kind in the world.



A SEARCHLIGHT ON WHICH OUR FIGHTERS DEPEND TO SHOW UP HOSTILE NIGHT-BOMBERS.

THE HOME COMMANDS OF THE ROYAL AIR FORCE

Here it may be useful to give a list of the squadrons and flights in the three Home Commands. The full establishment of a squadron with single-engined aircraft is 12 first-line machines, though work is usually carried out with only nine aeroplanes. The three which usually remain aground are not reserve machines. They are in reality reserve pilots. Reserve machines are kept in store to make up the establishment of 12 in case of an accident. The establishment of squadrons using twin-engined landplanes is 10. The establishment of a flight of the Fleet Air Arm is six first-line machines. The establishment of flying-boat squadrons has not yet been finally settled. It should also be noted that the term "aeroplane" includes both landplanes and seaplanes. It is a popular mistake to suppose that an aeroplane must have landing wheels. The term "seaplane" includes float-seaplanes and flying-boats. Float-seaplanes are used a good deal in the Coastal Area for practice, but no unit is officially equipped with them. The flights of the Fleet Air Arm use "ship-planes," which have wheeled undercarriages specially designed for landing on the deck of a carrier.



AIRCRAFTMAN WORKING ON A JUPITER.

AIR DEFENCE OF GREAT BRITAIN

Wessex Bombing Area

Unit	Aeroplane	Engine	Station
No. 12 (Bomber) Sqdn. (Day)	Fox	Felix	Andover.
,, 101 ,, ,, ,,	Sidestrand	2 Jupiters	,,
,, 100 ,, ,, ,,	Horsley	Condor	Bicester.
,, 35 ,, ,, ,,	Fairey III F	Lion	Bircham Newton.
,, 207 ,, ,, ,,	,,	,,	,,
,, 33 ,, ,, ,,	Hart	Rolls-Royce "F"	Eastchurch.
,, 9 ,, ,, (Night)	Virginia	2 Lions	Manston.
,, 10 ,, ,, ,,	Hyderabad	,,	Upper Heyford.
,, 99 ,, ,, ,,	Hinaidi	,,	,,
,, 7 ,, ,, ,,	Virginia	,,	Worthy Down.
,, 58 ,, ,, ,,	,,	,,	,,

Fighting Area

No. 19 (Fighter) Sqdn.	Siskin	Jaguar	Duxford.
,, 25 ,, ,, ,,	,,	,,	Hawkinge.
,, 54 ,, ,, ,,	Bulldog	Jupiter	Hornchurch.
,, 111 ,, ,, ,,	Siskin	Jaguar	,,
,, 23 ,, ,, ,,	Gamecock	Jupiter	Kenley.
,, 32 ,, ,, ,,	Siskin	Jaguar	,,
,, 24 (Commn.) Sqdn.	Avro, Bristol Fighter	Moth, —	Northolt.
,, 41 (Fighter) Sqdn.	Siskin	Jaguar	,,
,, 29 ,, ,, ,,	,,	,,	North Weald.
,, 56 ,, ,, ,,	,,	,,	,,
,, 1 ,, ,, ,,	,,	,,	Tangmere.
,, 43 ,, ,, ,,	,,	,,	,,
,, 3 ,, ,, ,,	Bulldog	Jupiter	Upavon.
,, 17 ,, ,, ,,	,,	,,	,,

INLAND AREA

Unit	Aeroplane	Engine	Station
No. 2 (Army Co-operation) Sqdn.	Atlas	Jaguar	Manston.
,, 4 ,, ,,	,,	,,	S. Farnborough.
,, 13 ,, ,,	,,	,,	Netheravon.
,, 16 ,, ,,	Bristol Fighter	Falcon	Old Sarum.
,, 26 ,, ,,	Atlas	Jaguar	Catterick.

COASTAL AREA

No. 201 (Flying-Boat) Sqdn.	Southampton	2 Lions	Calshot.
,, 204 ,, ,,	,,	,,	Mount Batten.
,, 209 ,, ,,	Iris	3 Condors	,,
No. 401 (Fleet Fighter) Flight	Flycatcher	Jaguar	H.M.S. *Furious*.
,, 404 ,, ,,	,,	,,	Donibristle.
,, 405 ,, ,,	,,	,,	H.M.S. *Glorious*.
,, 406 ,, ,,	,,	,,	,,
,, 407 ,, ,,	,,	,,	Donibristle.
,, 408 ,, ,,	,,	,,	H.M.S. *Glorious*.
,, 441 (Fleet Spotter) Flight	Fairey III F	Lion	,,
,, 443 ,, ,,	,,	,,	H.M.S. *Furious*.
,, 444 ,, ,,	,,	,,	Lee-on-Solent.
,, 445 ,, ,,	,,	,,	Leuchars.
,, 446 ,, ,,	,,	,,	Gosport.
,, 447 ,, ,,	,,	,,	H.M.S. *Glorious*.
,, 449 ,, ,,	Blackburn	,,	H.M.S. *Furious*.
,, 450 ,, ,,	,,	,,	,,
,, 461 (Fleet Torpedo Bomber) Flight	Dart	,,	H.M.S. *Glorious*.
,, 462 ,, ,,	Ripon	,,	,,
,, 463 ,, ,,	Dart	,,	H.M.S. *Furious*.
,, 464 ,, ,,	,,	,,	,,

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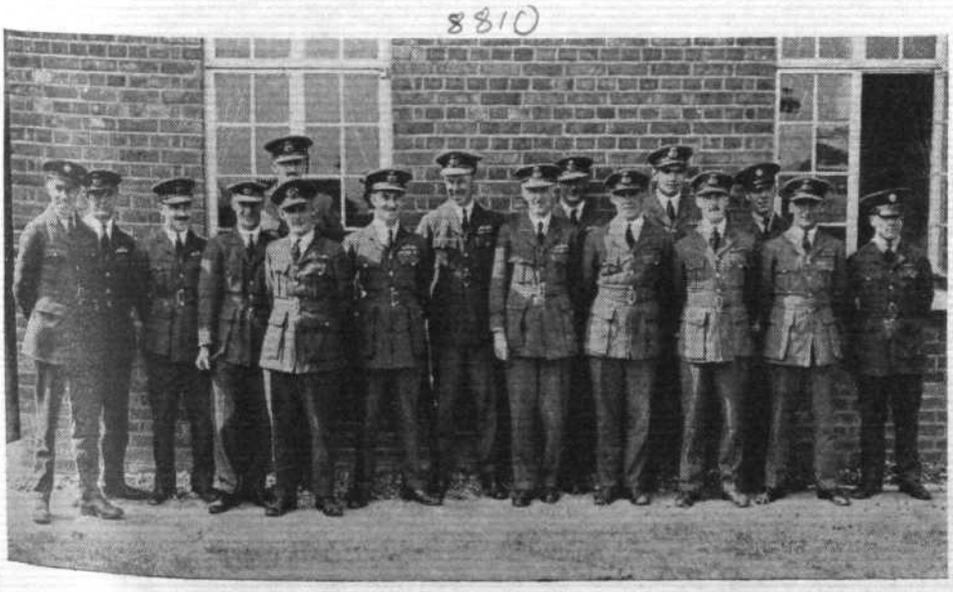
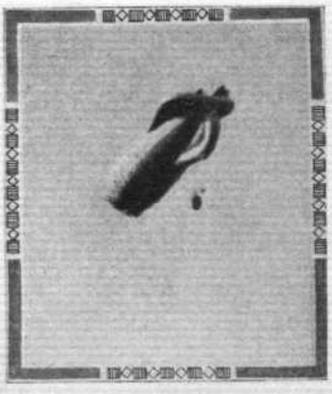
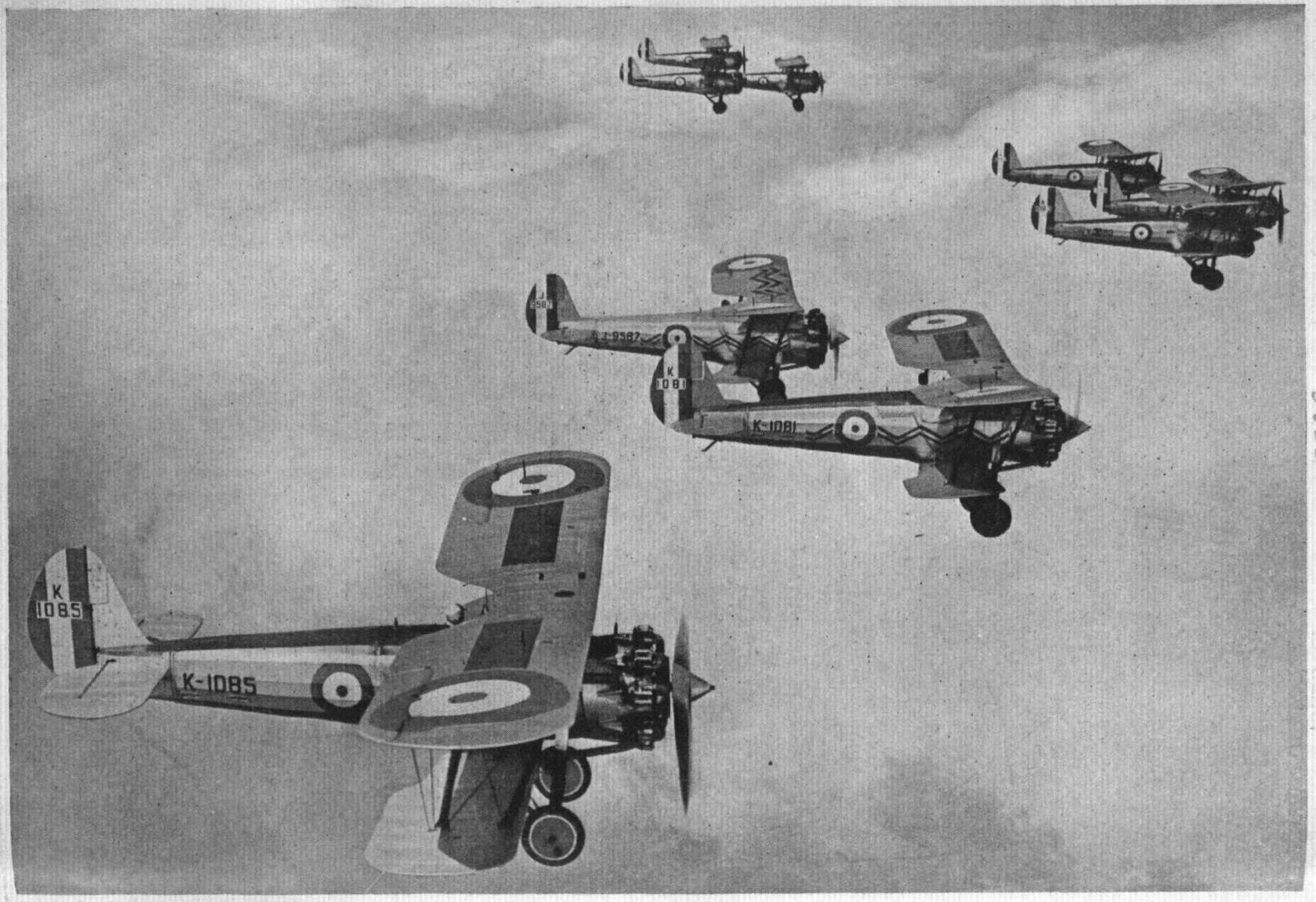
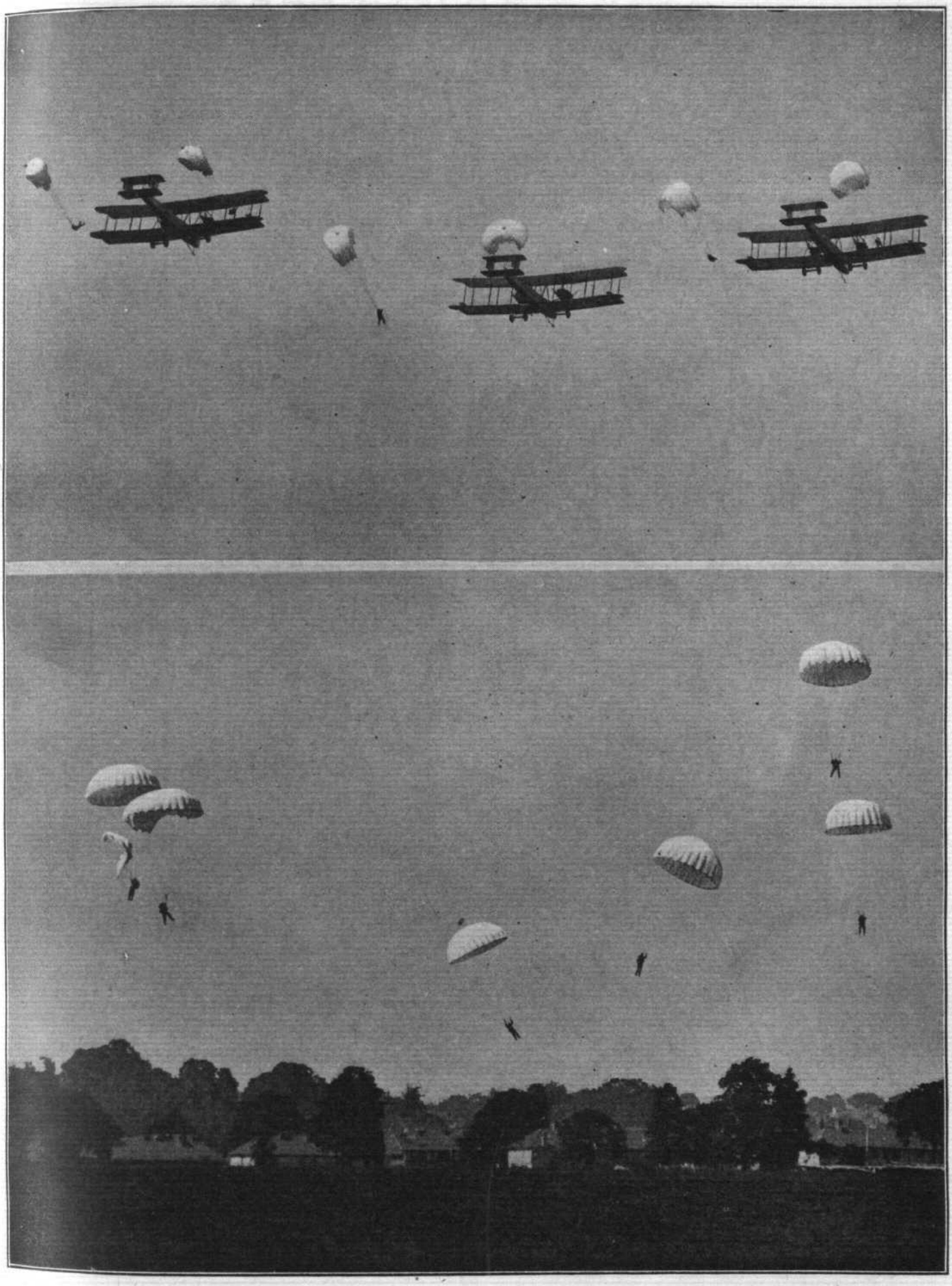


THE PILOTS OF NO. 17 (FIGHTER) SQUADRON.





NO. 17 (FIGHTER) SQUADRON FLYING IN "SQUADRON FORMATION." THIS UNIQUE PHOTOGRAPH SHOWS DETAILS OF THE BULLDOG AEROPLANE, AS WELL AS A GENERAL VIEW OF PERFECT FORMATION FLYING. (FLIGHT *Photo.*)



The two photographs shown above were taken at the Display last year, and show six parachutists dropping simultaneously from three Vickers "Vimy" bombers. In the upper picture, the Irving parachutes are shown half open. In the lower picture, the men are nearing the ground. The two on the left collided, and one of them quickly opened a second, emergency parachute, which can be seen just beginning to unfold. All six men reached the ground quite safely

AIRCRAFT TYPES

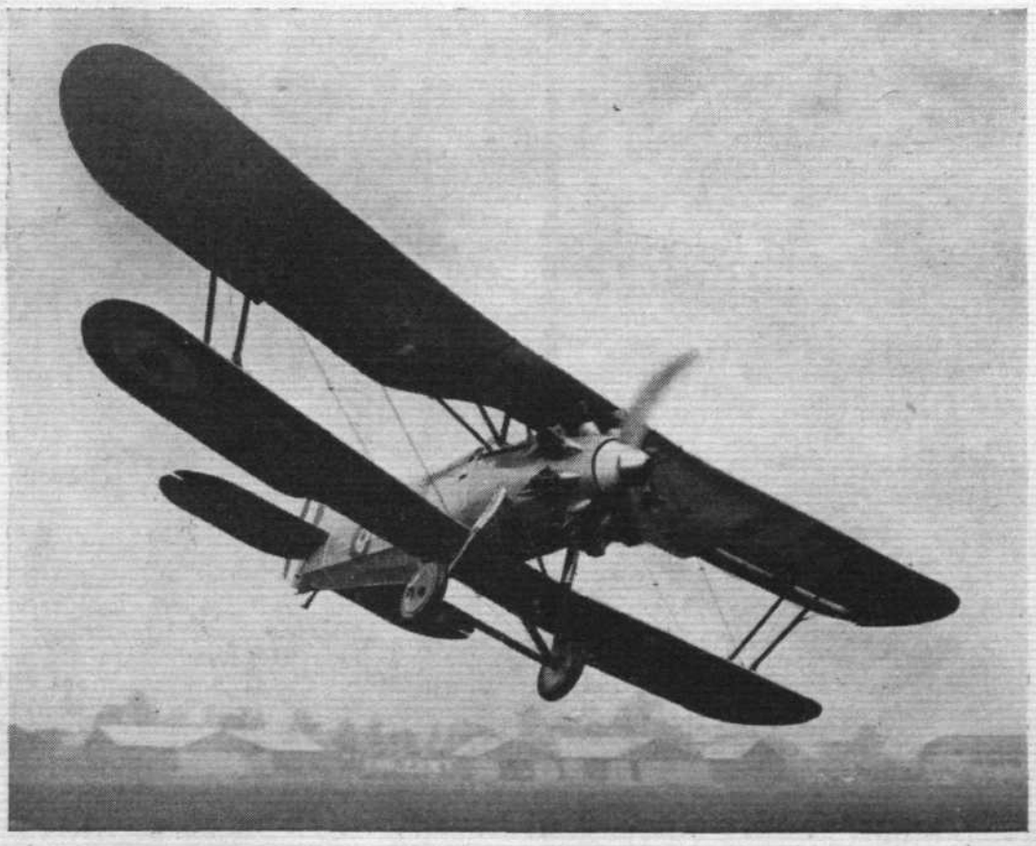
At the R.A.F. Display

THE following pages are devoted to illustrations of all the various types of aircraft which will be seen at Hendon for the R.A.F. Display. The photographs have been grouped according to whether the machines in question take part in the actual Display evolutions or whether they will be seen in the Parade, or merely be on view in the Aircraft Park. Under each of these main sections we have again sub-divided the machines according to class, such as Fighters, Bombers, etc., the types being arranged, in each group, in alphabetical order. So as to facilitate reference we give below an index to the different types.

Types in the Display.

Types in the Parade.

S.S. FIGHTERS



THE BRISTOL "BULLDOG": Fitted with a Bristol "Jupiter" engine, this machine is of all-metal (steel) construction, and is one of the types chosen for re-equipping the R.A.F. (FLIGHT *Photo.*)

S.S. FIGHTERS

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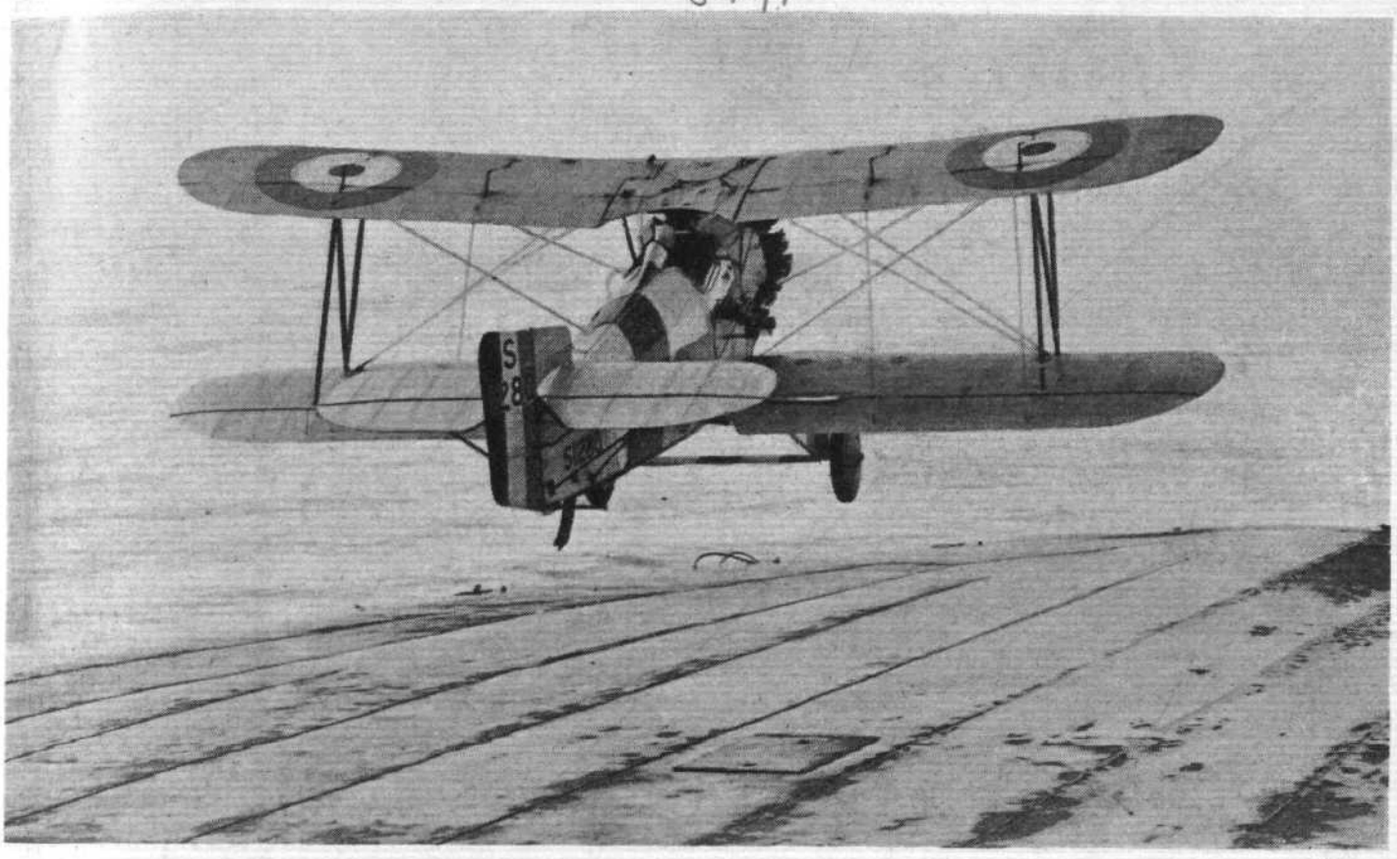
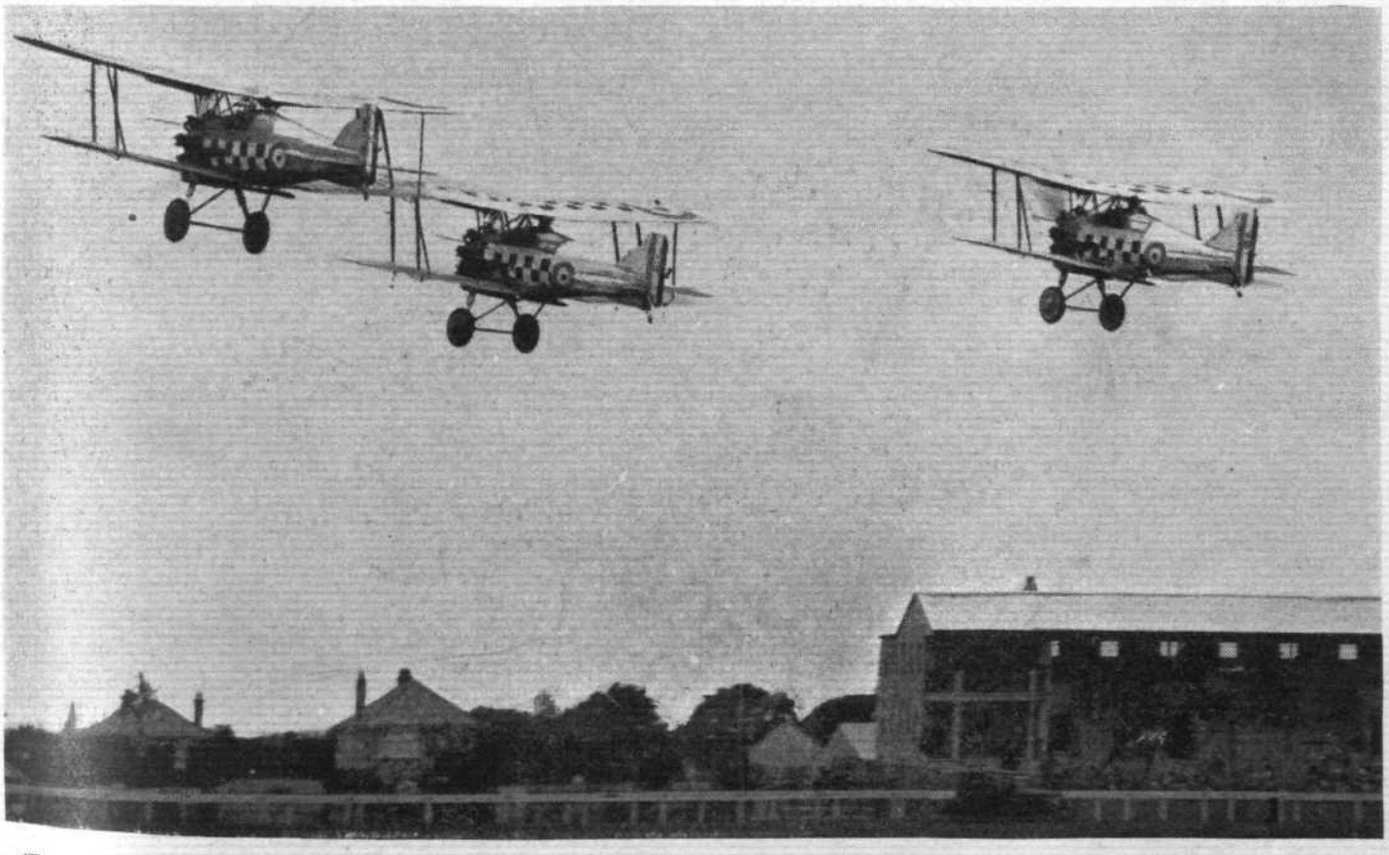


(FLIGHT *Photo.*)

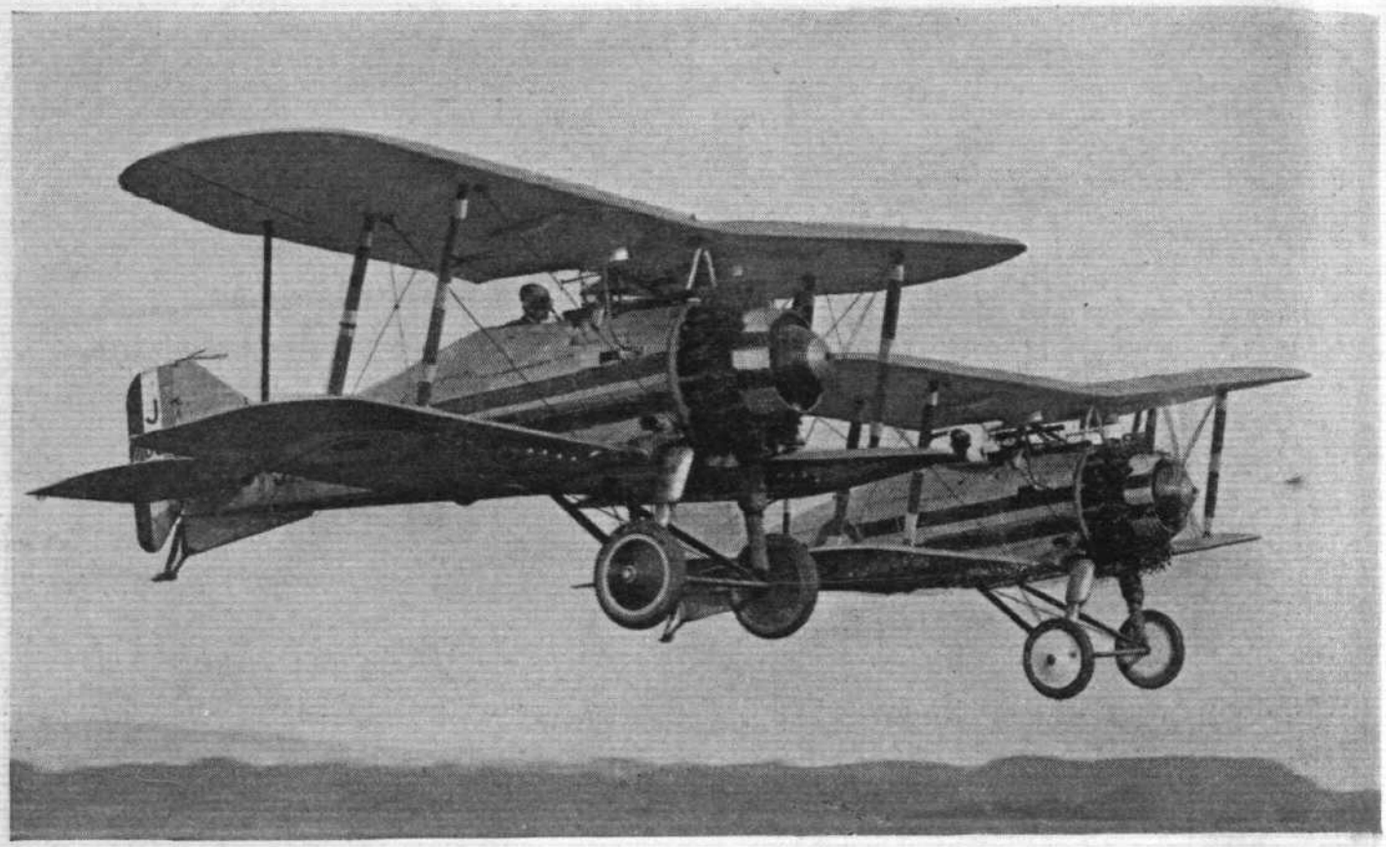
THE FAIREY "FLYCATCHER": This machine, variously fitted with "Jupiter" and "Jaguar" engines, is used extensively by the Fleet Air Arm. It has also been produced as a seaplane and as an amphibian.



(FLIGHT *Photo.*)

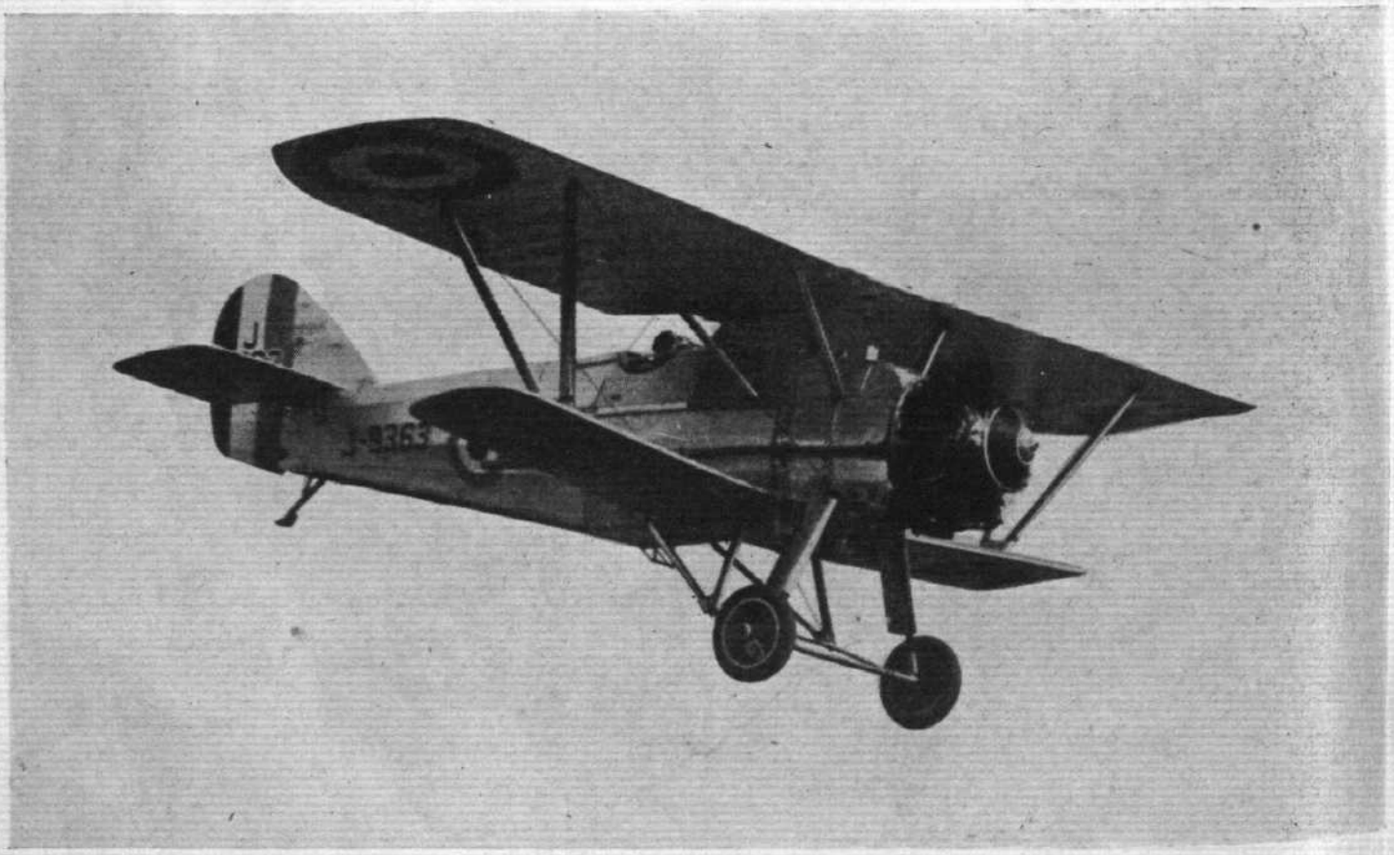
THE GLOSTER "GAMECOCK": For many years this type has been in use by R.A.F. Fighter Squadrons. It is still very popular for demonstrations and practising "Aerobatics." The engine is a "Jupiter."

S.S. FIGHTERS



THE GLOSTER "GREBE": The forerunner of the Gamecock, this type is now obsolescent, and probably this is the last time the type will be seen at an R.A.F. Display at Hendon.

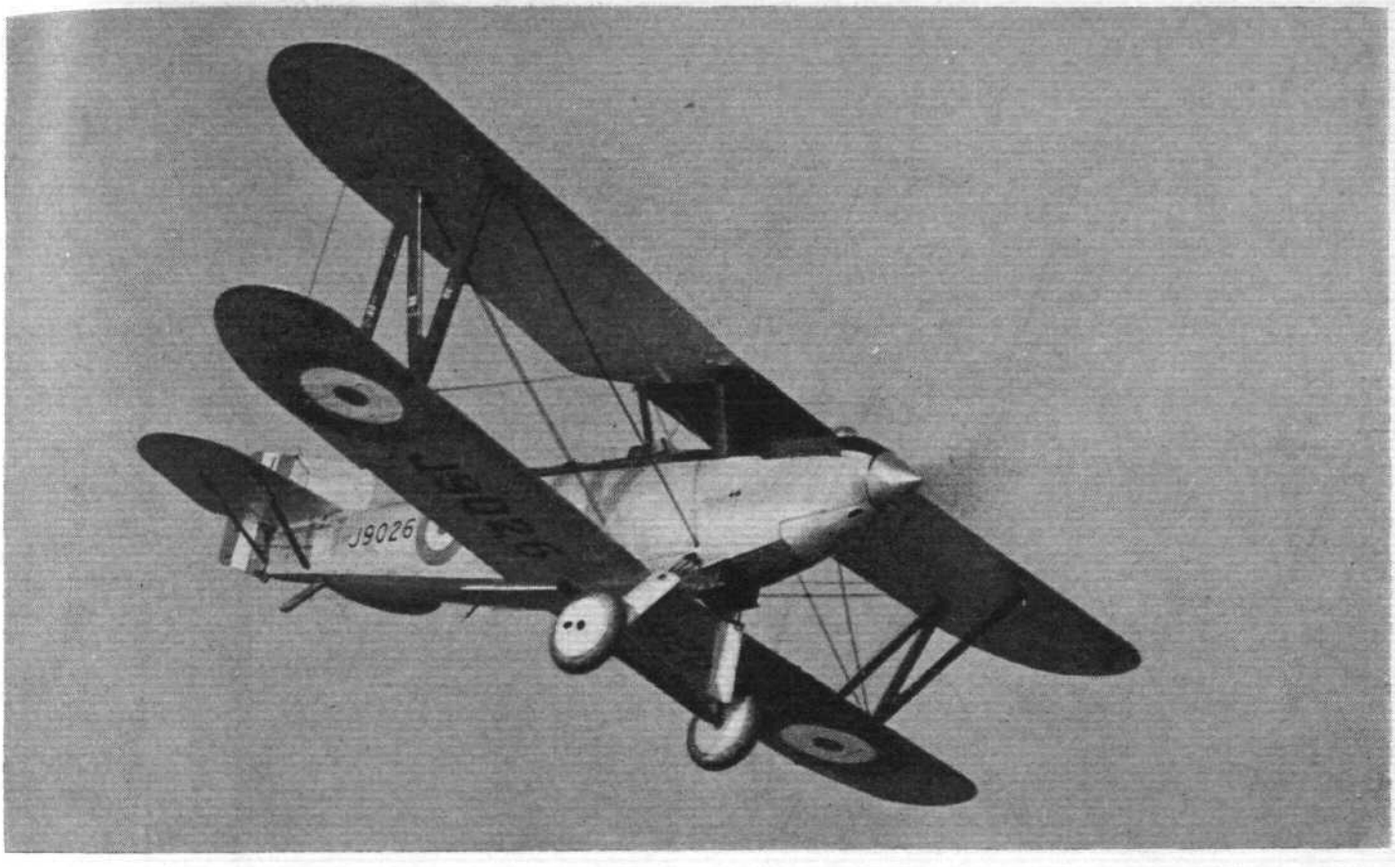
(FLIGHT *Photo.*)



THE ARMSTRONG WHITWORTH "SISKIN": The first S.S. Fighter of all-metal construction, the "Siskin" is used in greater numbers than any other machine of its class. The engine is a "Jaguar."

(FLIGHT *Photo.*)

DAY BOMBERS



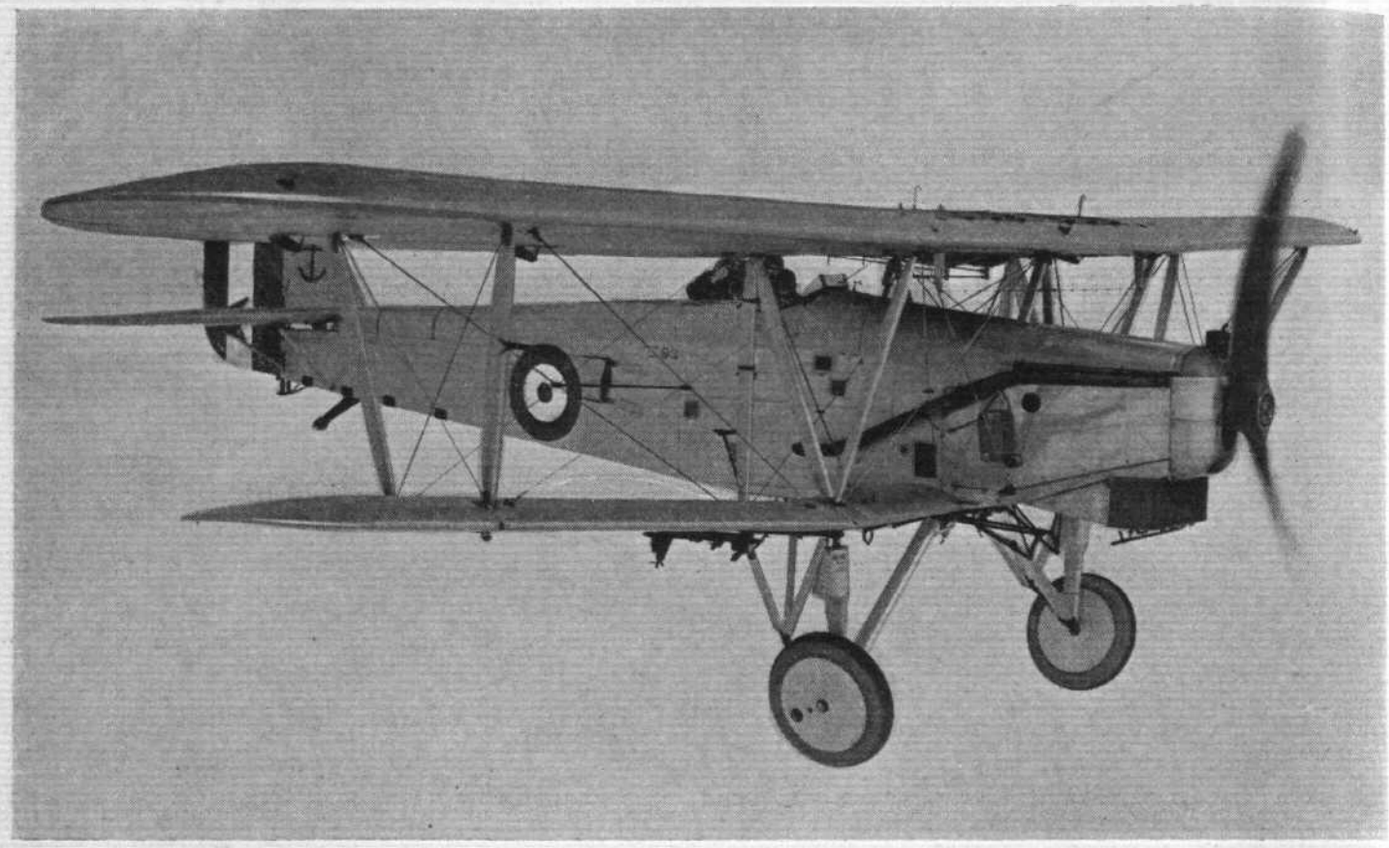
(FLIGHT *Photo.*)

THE FAIREY "FOX": A machine which set a new standard in high-performance day bombers. By getting all the equipment inside the fuselage, the machine was kept very "clean." The engine is a D. 12.

(FLIGHT *Photo.*)

THE FAIREY III F.: In addition to its use as a Day Bomber, the III F. is produced as a General Purpose aircraft, and as a twin-float seaplane with many functions. The engine is a Napier "Lion."

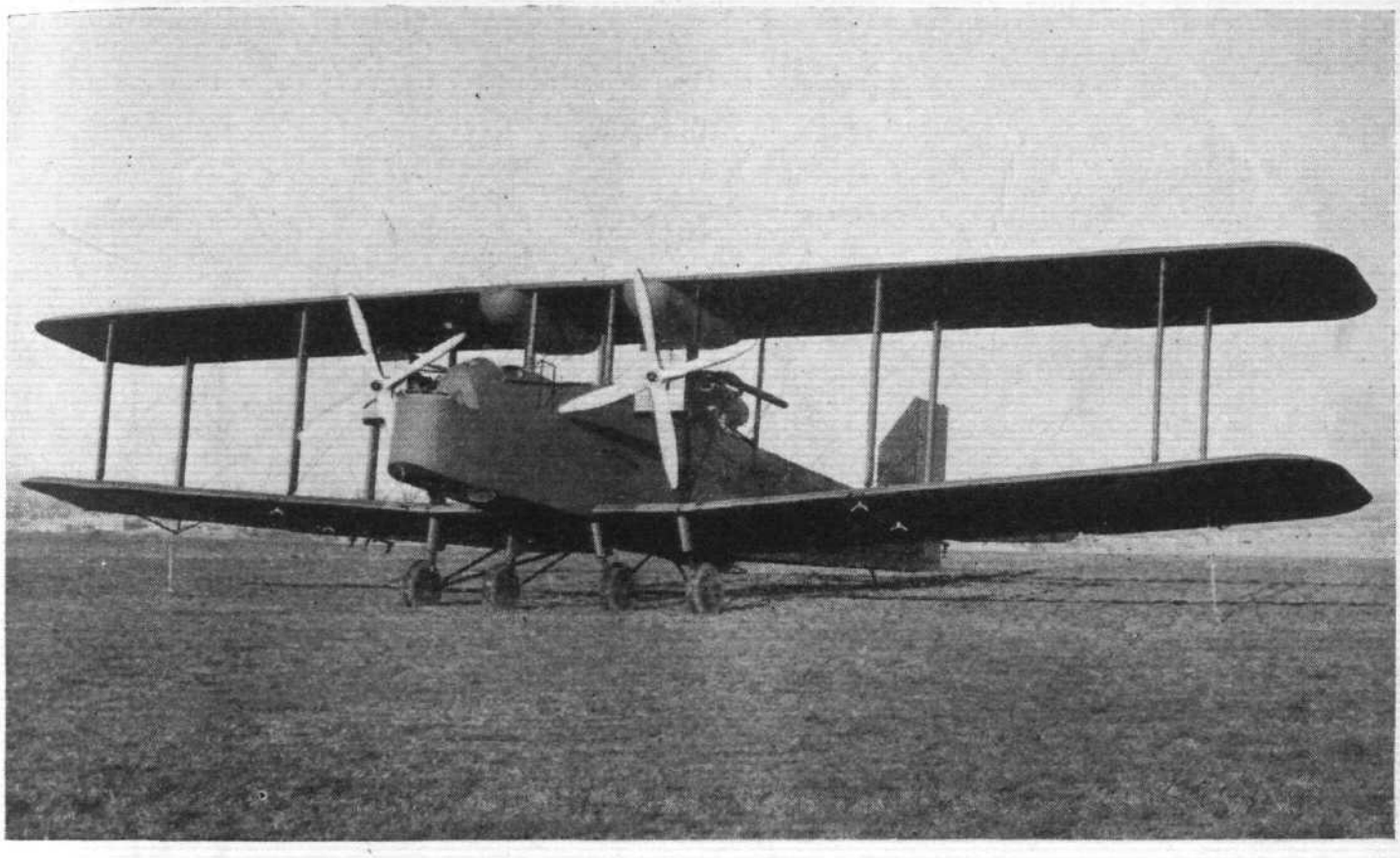
DAY BOMBERS



THE HAWKER "HORSLEY": Fitted with a Rolls-Royce "Condor" engine, this machine has long been in use as a Day Bomber, and has also been produced as a Torpedo 'Plane. (FLIGHT *Photo.*)

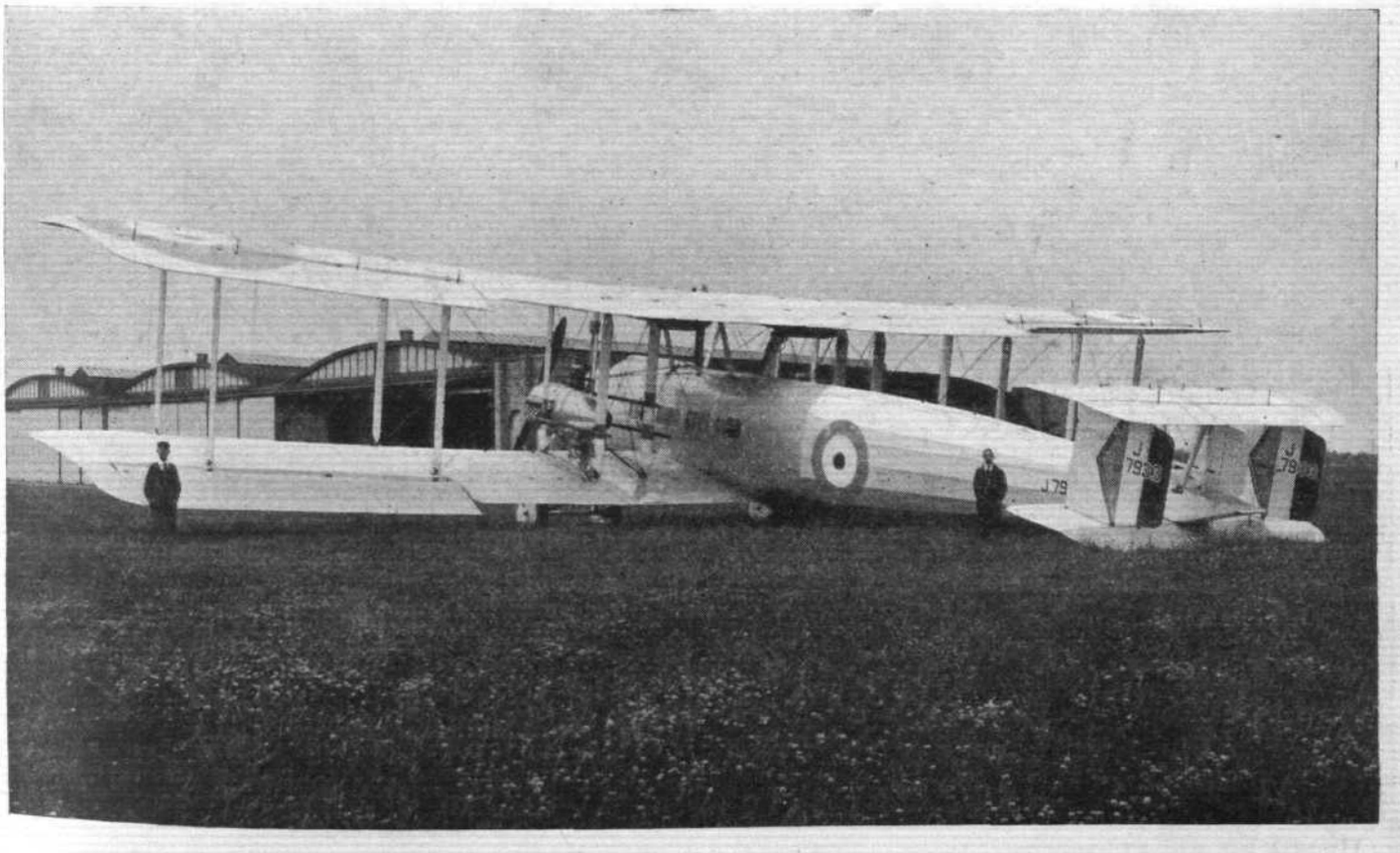
THE WESTLAND "WAPITI": In addition to its functions as a Day Bomber, the "Wapiti" is also produced in the form of a General Purpose machine, and for Army Co-operation overseas. The engine is a "Jupiter." (FLIGHT *Photo.*)

NIGHT BOMBERS & TROOP CARRIERS



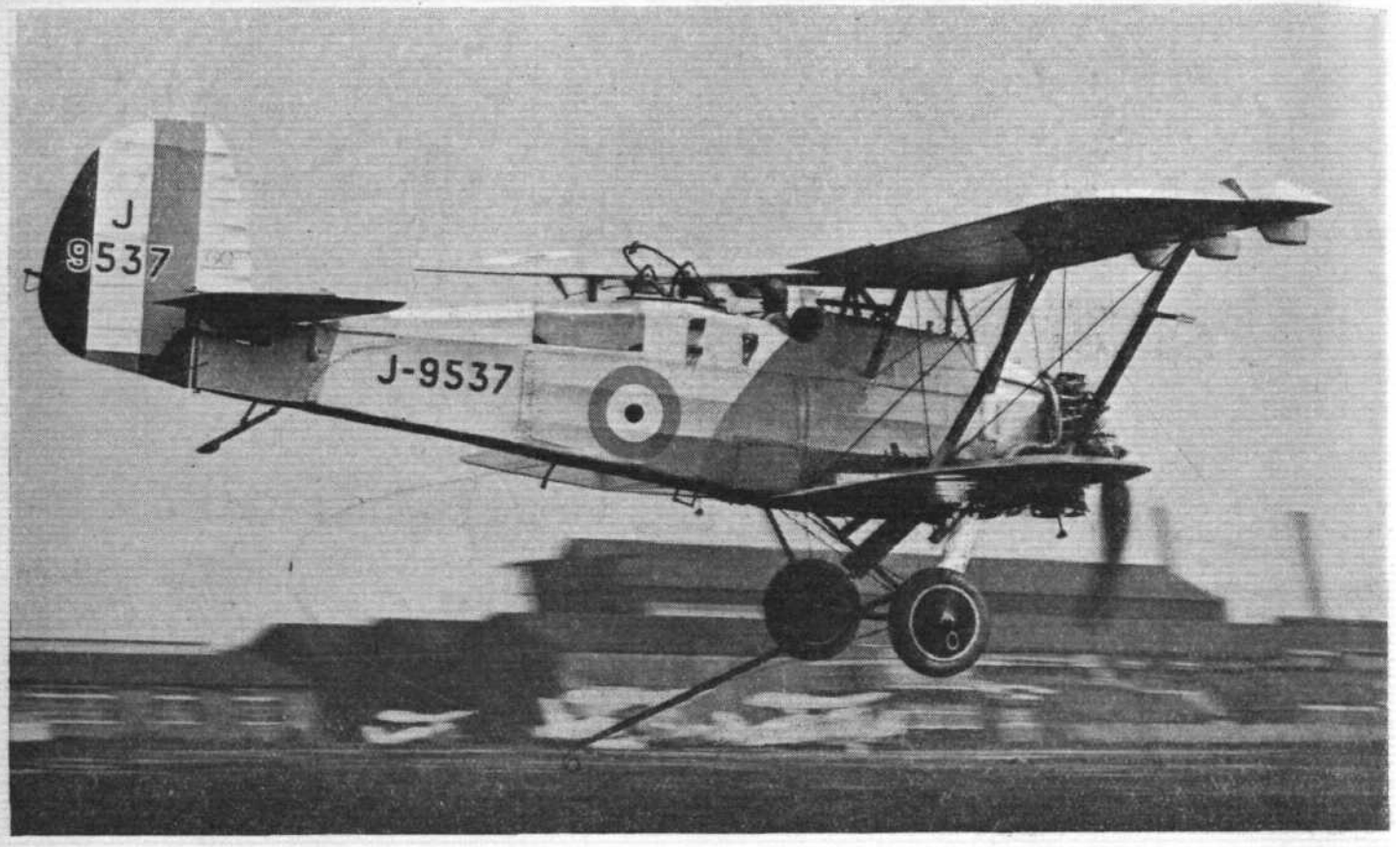
(FLIGHT *Photo.*)

THE HANDLEY PAGE "HYDERABAD": A twin-engined Night Bomber with Napier "Lion" engines. It should be noted that machines of this class are painted a dark colour to render them less conspicuous at night.

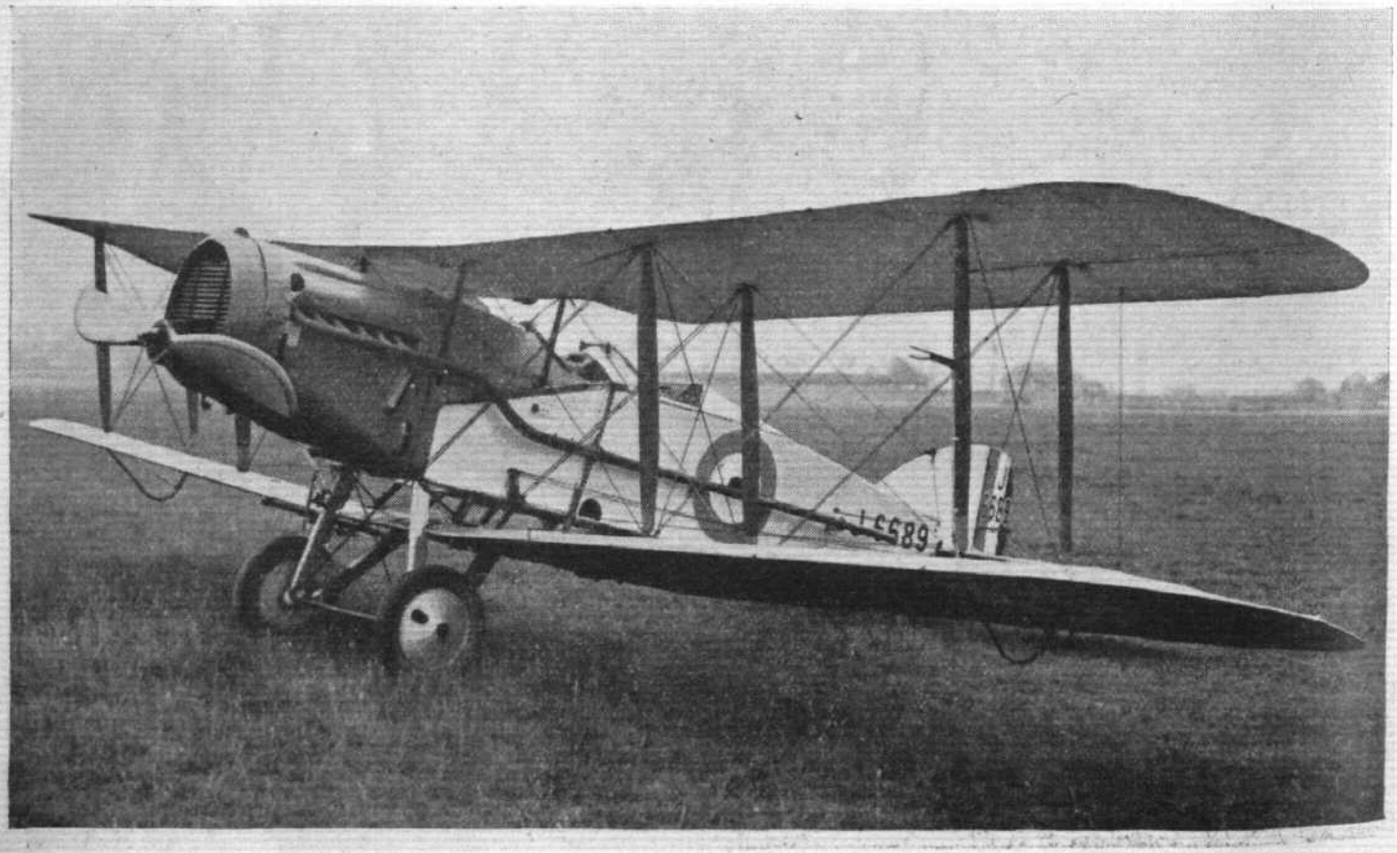


THE VICKERS "VICTORIA": A Troop Carrier, with two Napier "Lion" engines, this machine is a direct descendant of the famous "Vimy," on which Alcock and Brown crossed the Atlantic in 1919.

ARMY CO-OPERATION



THE ARMSTRONG-WHITWORTH "ATLAS": Fitted with Armstrong-Siddeley "Jaguar" engine, this is now the standard Army Co-operation machine. (FLIGHT *Photo.*)



THE BRISTOL FIGHTER: First produced during the war, the "Brisfit," as it is often called, is now becoming obsolete, although one Squadron is still equipped with it. (FLIGHT *Photo.*)

TRAINING MACHINES

(FLIGHT *Photo.*)

THE AVRO-LYNX : One of the variations on the famous old " 504," this machine has been the standard training machine of the R.A.F. for many years. The engine is a " Lynx."

(FLIGHT *Photo.*)

THE DE HAVILLAND " MOTH " : Used for various purposes by the R.A.F., the " Moth," in its service versions, is fitted variously with the D.H. " Gipsy " and the Siddeley " Genet " engines.

EXPERIMENTAL TYPES

THE CIERVA "AUTOGIRO": Instead of wings, this machine has a "windmill," which is caused to rotate by the passage of the machine through the air. The machine cannot stall. The engine is a "Genet."

THE HANDLEY PAGE "GUGNUNC": Built for the Guggenheim Competition, this machine has slots all along the leading edge of its wings. These give extra lift, and prevent the machine from stalling. Armstrong-Siddeley "Mongoose" engine. (FLIGHT *Photo.*)

INTERCEPTOR FIGHTERS

Official Air Ministry Photo.
Crown Copyright.

THE DE HAVILLAND INTERCEPTOR FIGHTER: This machine is fitted with the new Napier "H" engine, which is an air-cooled, having its 16 cylinders arranged in the form of a letter "H."

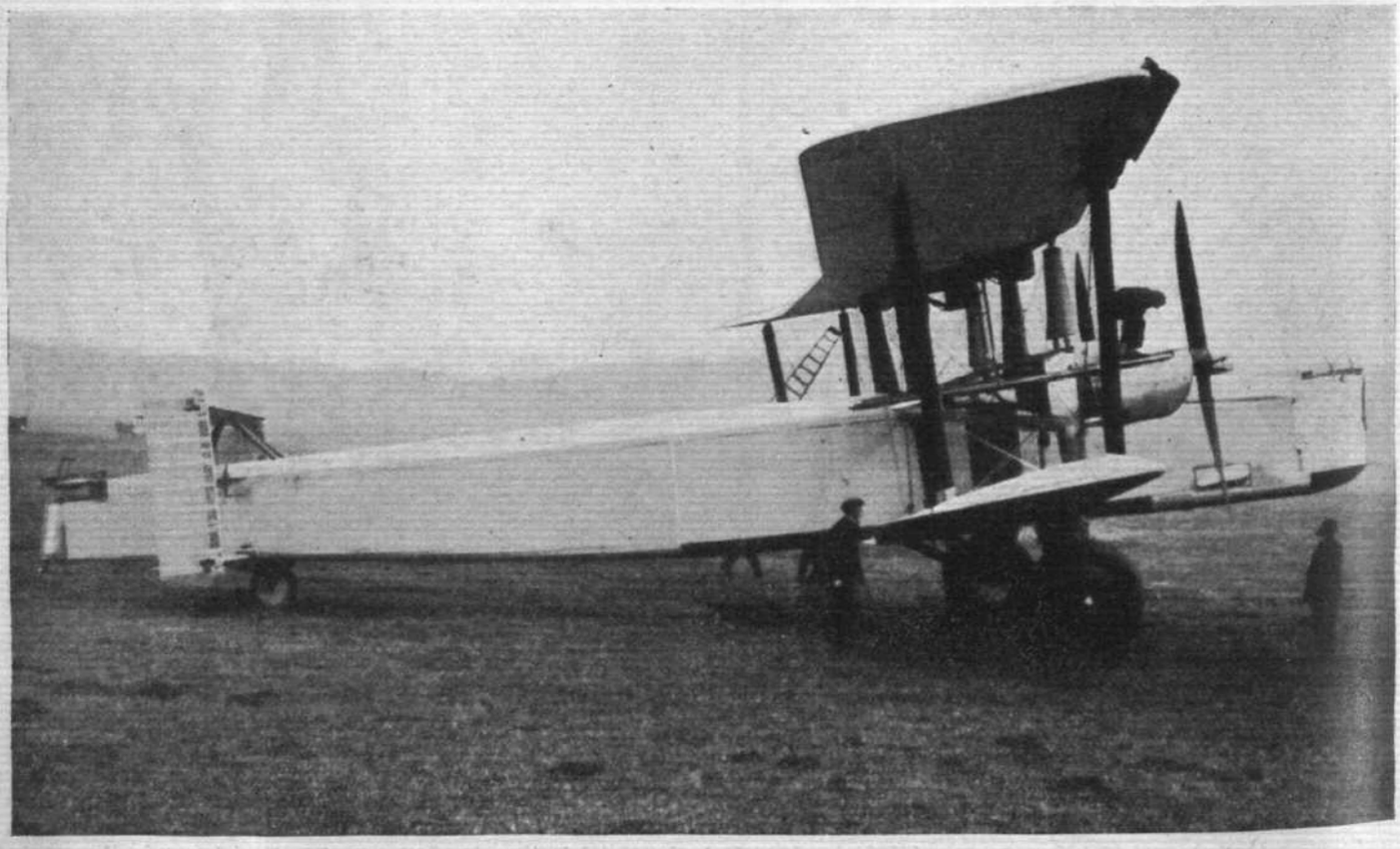
(FLIGHT *Photo.*)

8704

THE FAIREY "FIREFLY": An Interceptor Fighter, of all-metal construction and fitted with Rolls-Royce "F" type supercharged engine. The very clean lines show a strong resemblance to other Fairey machines.

DAY & NIGHT BOMBERS

THE HAWKER "HART": This Day Bomber with Rolls-Royce "F" engine is now in use in the Royal Air Force. The machine to be seen at Hendon is of interest in that the engine is steam-cooled. (FLIGHT *Photo.*)



THE VICKERS TWIN-ENGINED NIGHT BOMBER: This is an entirely new machine with some unusual features. It is of all-metal construction, and powered by two Rolls-Royce "F" engines.

TRAINING MACHINES

(FLIGHT *Photo.*)

THE AVRO "TRAINER": Designed to supplant the famous Avro-Lynx, this machine is of all-metal construction, and incorporates all possible modern refinements. Supplied either with "Mongoose" or "Lynx" engines.

THE BLACKBURN "LINCOCK": As a machine for advanced training, this little single-seater would be difficult to improve upon. It is extremely manœuvrable. The engine is a "Lynx."

CIVIL AIRCRAFT

THE DE HAVILLAND "PUSS MOTH": Of recent production, this little monoplane is already on order in large numbers. The engine is a "Gipsy III." (FLIGHT *Photo.*)

THE SAUNDERS-ROE "CUTTY SARK": A four-seater flying-boat with Duralumin hull and wooden wings. Also produced as an amphibian. The engines are Cirrus-Hermes. (FLIGHT *Photo.*)

RACERS

9659

(FLIGHT *Photo.*)

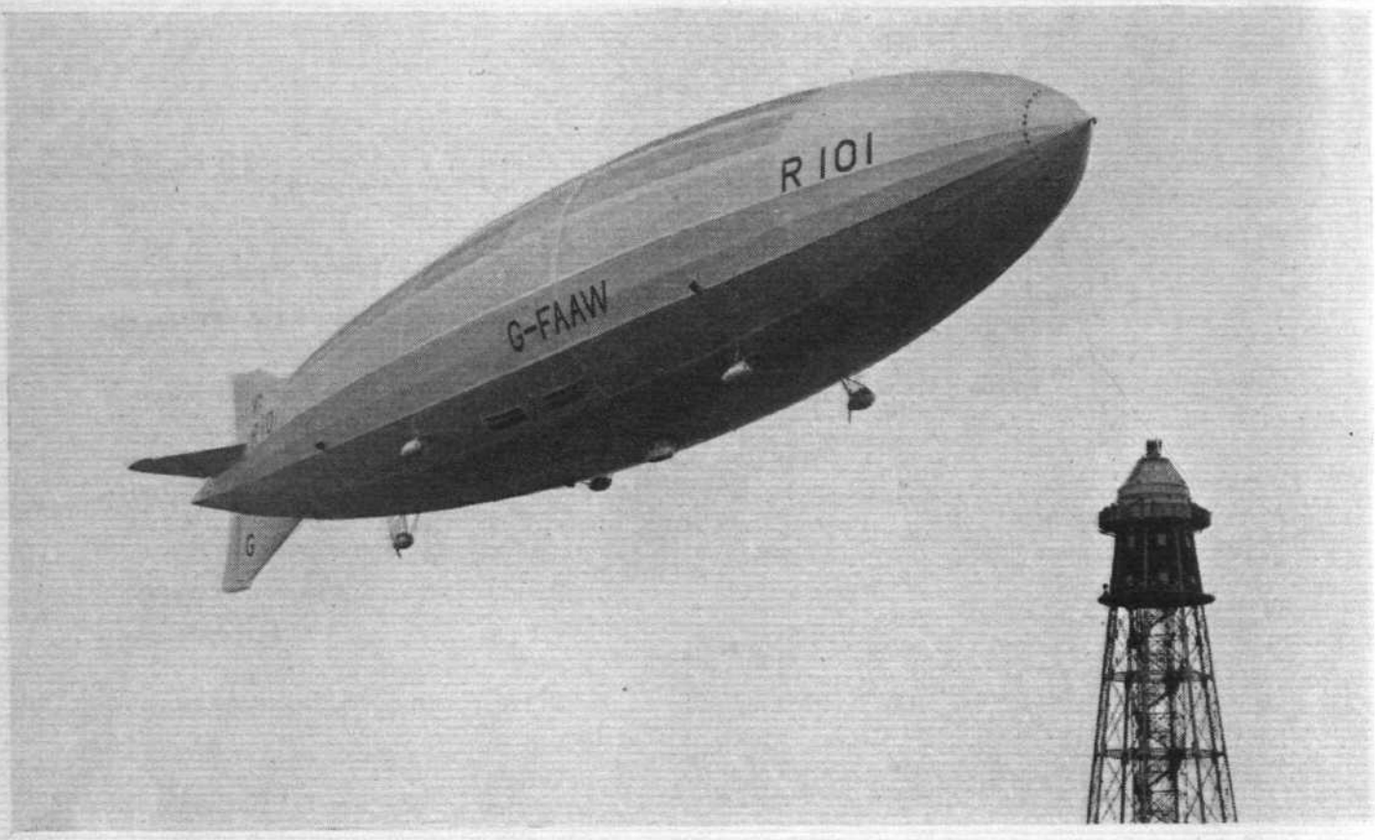
THE GLOSTER-NAPIER VI: Designed for last year's Schneider Trophy Contest. Is now being re-conditioned and will be flown a good deal in the near future. Napier Racing engine.

9669a

(FLIGHT *Photo.*)

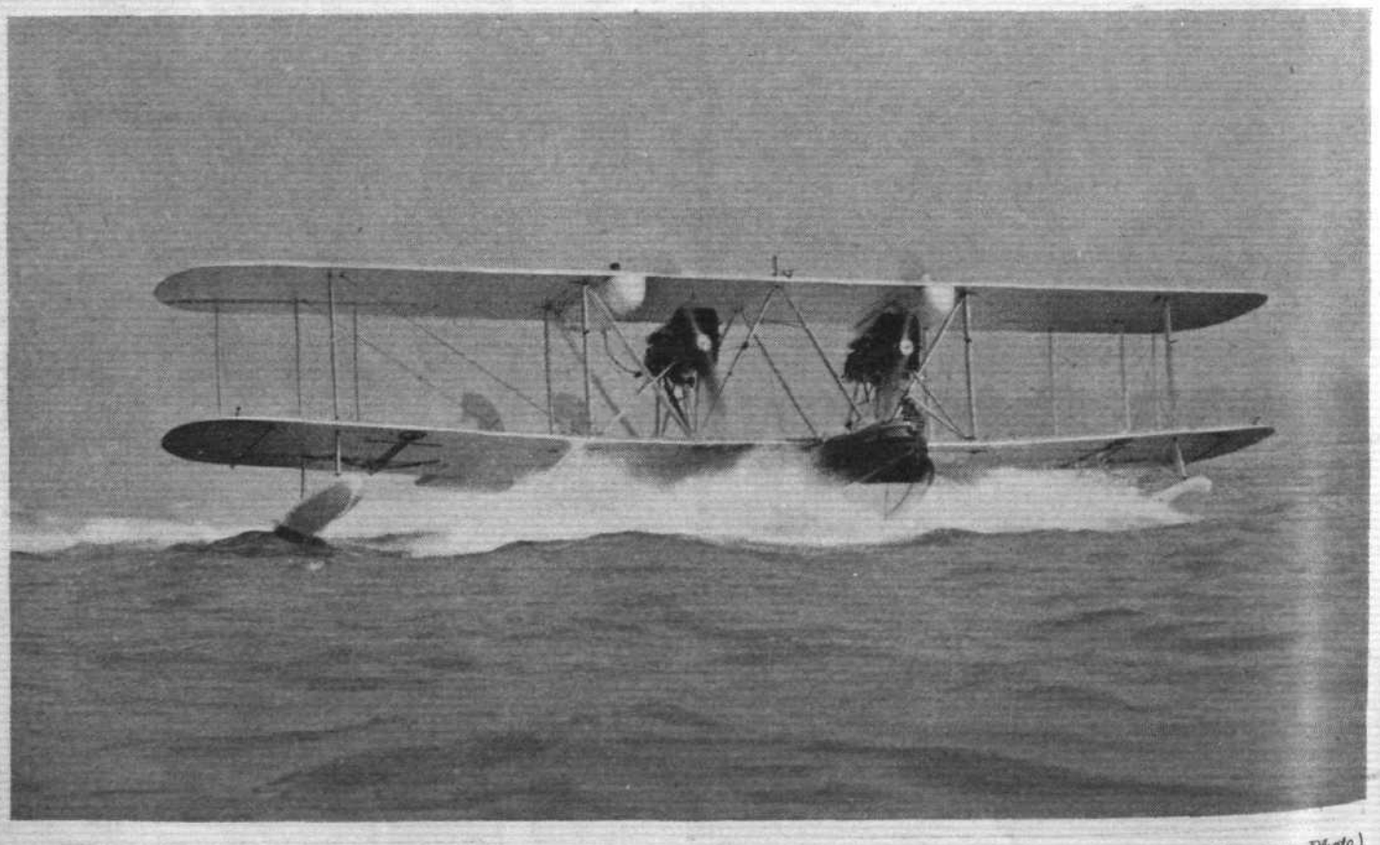
THE SUPERMARINE-ROLLS ROYCE S.6: Winner of the 1929 Schneider Trophy Contest, and holder of the World's Speed Record, with a speed of 357·7 m.p.h. The engine is a Rolls-Royce "R" engine.

AIRSHIPS & FLYING BOATS



R 101 : During the R.A.F. Display this Airship will cruise around over Hendon. She is fitted with five Beardmore compression-ignition engines.

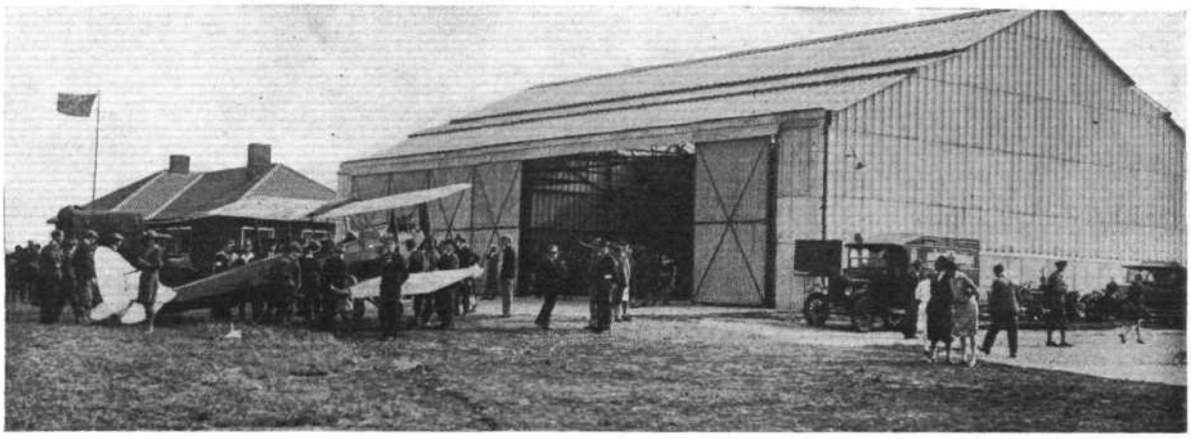
(FLIGHT *Photo.*)



THE SUPERMARINE "SOUTHAMPTON" : This type of flying-boat, fitted with Napier "Lion" engines, is used extensively for Coast Defence. The type also has some very long cruises to its credit, such as from England to and around Australia and on to Singapore.

(FLIGHT *Photo.*)

PRIVATE FLYING AND CLUB NEWS



The Clubhouse and Hangar at Tollerton Aerodrome. (FLIGHT *Photo.*)

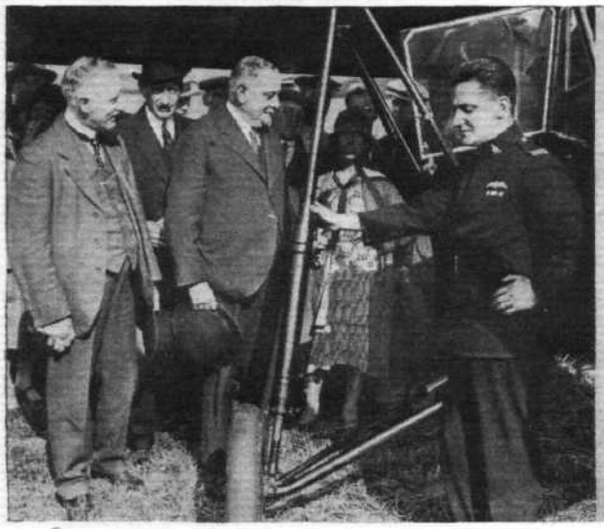
NOTTINGHAM AIR PAGEANT

NOTTINGHAM'S Municipal Airport at Tollerton (about four miles from the city) was opened by Sir Sefton Brancker, Director of Civil Aviation, on Thursday, June 19, the occasion being marked by a successful Air Pageant organised by National Flying Services and the Nottingham Flying Club, which is affiliated to the former. In fact, Tollerton is the official home of the N.F.C. and the opening ceremony included the "Standard N.F.S." Clubhouse, which has been erected alongside the hangar on the west side of this excellent aerodrome. Our readers will, perhaps, remember that the previous Lord Mayor of Nottingham, Alderman A. R. Atkey, flew from Nottingham to Stag Lane on July 27 last year to receive the licence for the aerodrome from Sir Sefton Brancker.

Mr. John Tranum nearly roosts in the trees during his parachute descent at Tollerton. (FLIGHT *Photo.*)

On the present occasion Sir Sefton flew up to Nottingham from Hanworth in a Desoutter "air taxi," arriving at Tollerton at about 1 p.m. Shortly after, the Civic party arrived from the city (but not by air !), the Lord Mayor (Coun. W. Wesson) being accompanied by the Lady Mayoress (Mrs. H. Wesson), the Sheriff (Coun. W. Hooley), and Miss Hooley, The Town Clerk (Mr. W. J. Board) and Mrs. Board, Ald. Sir Albert Ball (chairman of the Nottingham Flying Club), and Ald. Sir Bernard Wright. They were met by Lieut.-Col. Edwards and Capt. G. E. F. Boyes (deputy managing director of National Flying Services), and were introduced to Sir Sefton Brancker.

FROM ABOVE : An aerial view of Tollerton Aerodrome, the headquarters of the Nottingham Flying Club, and Nottingham's Municipal Aerodrome. (FLIGHT *Photo.*)



MUNICIPAL INTEREST : On the left, the Lord Mayor of Nottingham (Coun. W. Wesson), centre, about to go for a flight in the Desoutter-Hermes limousine piloted by Flight-Lieut. Schofield, right ; Mr. Hooley (Sheriff) is on the left. The group in the next picture includes, from left to right, Mrs. Board, Mr. W. J. Board Town Clerk), Col. I. A. E. Edwards, Sir Albert Ball (Chairman, N.F.C.), the Lord Mayor, Miss Hooley, Mr. Hooley, and the Lady Mayoress. (FLIGHT *Photos.*)

Meanwhile a number of aircraft had arrived at the 'drome, some having flown from various part of the country the previous day. Incidentally, the " on-to-Tollerton " competition—in which the first pilot to arrive after 12 noon was awarded a prize—was won by Mr. S. B. Cliff (Hampshire Ae.C.) who, flying from Hamble, landed his " Cirrus-Moth " five seconds after the zero hour !

At 2 p.m. the opening ceremony was performed, the speeches by the Lord Mayor and Sir Sefton Brancker being broadcast over the enclosures.

The ceremony over, a varied programme of flying took place, opening with a handicap race for private owners over a course of about 30 miles. Originally there was a good entry for this event, but the bad weather on the previous day, which prevented several machines reaching the aerodrome, and other causes resulted in there being only three starters. These were F./O. A. G. Store, Breda monoplane (handicap, 2 mins. 06 secs.) ; F./O. W. A. Andrews, Simmonds " Spartan " (1 min. 51 secs.) ; and Flight-Lieut. S. David, D.H. " Puss Moth " (scratch) —the latter machine belonging to Mr. W. L. Evered, M.P. for Melton Mowbray and President of Leicestershire Ae.C.

Actually, Andrews completed the course first in 19 mins. 30 secs., David following on the " Puss Moth " only two seconds behind, and 15 seconds later the Breda, piloted by Store, crossed the line. Andrews and Store, however, were disqualified for flying too low, so first prize was given to David; the two other competitors, nevertheless, were awarded consolation prizes.

Following this came the " fly past " of the various machines present—these comprising Moths, Desoutters, a Spartan, a Breda, a " Puss Moth " an Autogiro, etc.

The next item on the programme was a demonstration of the Autogiro by F./O. Egglesfield, which caused a considerable amount of interest. Flight-Lieut. H. M. Schofield then gave an excellent display of aerobatics on a " Cirrus-Moth," including a wonderful inverted " falling leaf."

A very original " turn " came next, which both interested and amused the crowd. This was a demonstration by members of the Nottingham Gliding Club of short glides on an " avion sans moteur."

A form of crazy flying, or " how *not* to fly," was then demonstrated by Flight-Lieut. Styran, and a remarkable demonstration it was, too. Aerobatics on a " Hermes-Desoutter," by Flight-Lieut. Schofield, the next event, was also interesting to watch, for a business-like cabin machine looks strange performing all manner of contortions.

More aerobatics then followed with the competition in this form of flying for private owners. The winner was Mr. Winn (Leicestershire Ae.C.), while Mr. Wynn (Nottingham Ae.C.) won second place ! The third competitor was Mr. Cliff (Hampshire Ae.C.). All these flew " Moths."

F./O. Egglesfield next proceeded to blow up the level crossing (the supply of N.F.S. level crossings must surely be dwindling !). As on previous occasions, his aim was good and true and the bang splendid.

The ever-popular parachute descent by Mr. John Tranum with a Russell Lobe, wound up the programme—on this occasion Mr. Tranum jumped from a Desoutter. As this was the first time he had jumped from this machine he experienced a little difficulty in judging his " range," and so landed just outside the 'drome—but in full view of the spectators.

After the Lady Mayoress had distributed the prizes, the rest of the evening was devoted to joy riding—the Lord Mayor himself going for a flip in a Desoutter with Schofield.

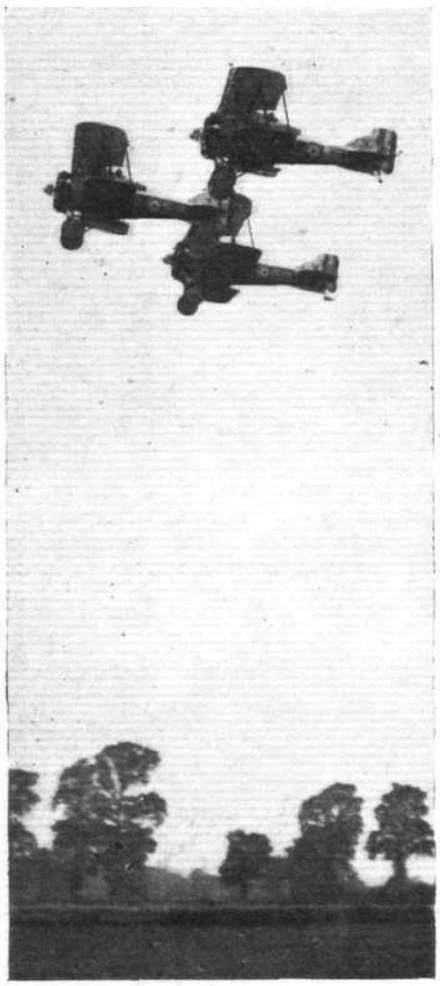
CENTRE OF ATTRACTION : Visitors at Tollerton were especially interested in the D.H. " Puss Moth," with its inverted " Gipsy " engine, and the Autogiro, which took part in the Pageant. (FLIGHT *Photo.*)

HOUSEHOLD BRIGADE FLYING CLUB MEETING

HESTON Air Park was no place for nervous people last Saturday. Machines were doing incredible things in the air and (sometimes) on the ground, and unless one knew the pilots in each case one might be forgiven for feeling a certain amount of uneasiness. When, however, it was found that in each case the pilot was a master of his craft the anxiety vanished and it became possible to appreciate the excellence of the different evolutions. The occasion was a meeting of the Household Brigade Flying Club, the programme being divided into two sections: a landing competition in the morning and a series of aerobatics displays in the afternoon.

Admission to Heston was by invitation card only, and so there was no huge crowd of spectators. But, on the other hand all those present knew each other, and consequently the afternoon became a very jolly affair indeed.

The serious part of the programme was the landing competition held in the morning. This was for the Gwynn Madocks Challenge Cup, and was confined to members of the Household Brigade Flying Club. In this competition pilots had to throttle down their engines at 500 ft. and alight as close as possible to a mark on the aerodrome without using the engine. The competition, which had drawn no less than 20 entries, was won this year by Mr. A. V. C. Douglas of the Scots Guards, with a total of 98½ points.



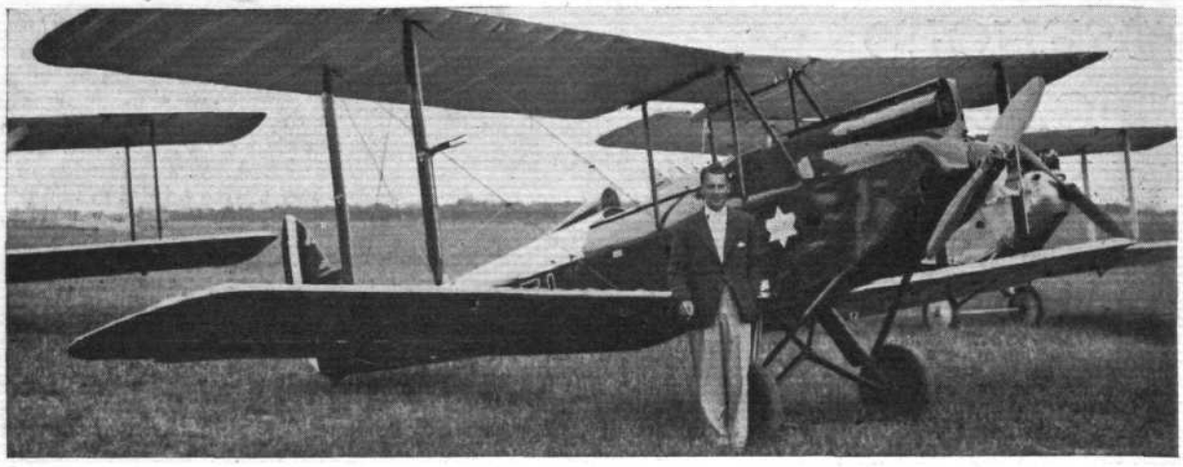
THE SERVICE SIDE: Three Gloster "Gamecocks" of No. 23 Squadron gave a fine display of Aerobatics. (FLIGHT *Photo.*)

A large number of machines visited Heston during the day, and at one time there were more than 50 aircraft standing about in the park. If proof were needed that private flying is booming it was surely provided by the number and variety of machines, nearly all of the owner-pilot class, and ranging from the little Comper "Swift" to the Westland IV three-engined machine. The R.A.F. was represented by some Gloster Gamecocks of No. 23 (Fighter) Squadron, Kenley, which later in the day gave a splendid exhibition of aerobatics, led by Flight-Lieut. Atcherley.

The afternoon's entertainment, from the official programme, promised to be slightly monotonous, as it was to consist entirely of aerobatics displays. Actually it was very far from being boring, the "artistes" each presenting some speciality so that there was no repetition of "turns."

Flight-Lieut. Schofield opened the proceedings by giving one of his usual finished displays on a Desoutter monoplane with Cirrus-Hermes engines. Schofield has mastered not only the art of aerobatics but the equally important one of "stageing." His evolutions are carried out in the right place, near enough and low enough to be followed perfectly, yet not so close to the enclosures and to the ground as to give any cause for anxiety. The importance of this is not, unfortunately, realised by many pilots whose evolutions in themselves are very good.

IN THE MACHINE PARK AT HESTON: Some of the visiting machines. Altogether there must have been at least 50 aeroplanes on view to interested visitors. (FLIGHT *Photo.*)



A FLYING BUSINESS MANAGER: Mr. F. L. N. St. Barbe, of the De Havilland Aircraft Co., is likely to be a frequent visitor to the various meetings this summer in his new Gipsy-Moth single-seater. The machine is easily identified by its yellow fuselage and the registration letters G-AAFI. (FLIGHT *Photo.*).

Three Gamecocks of No. 23 (Fighter) Squadron gave a very fine exhibition of aerobatics in formation, their loops being particularly good in spite of a somewhat boisterous wind. Later in the afternoon two Gamecocks went up to do individual aerobatics, and a very fine show they gave. One evolution, which we have not previously seen, consisted in the two machines coming in over the enclosures wing tip to wing tip and then, when out over the aerodrome, "zooming" until they were almost standing still in the air, right on the point of doing a tail slide. Then exactly at the right instant, the two machines were permitted to "fall" outward from each other, their tails still only a few feet apart. This was a most effective performance.

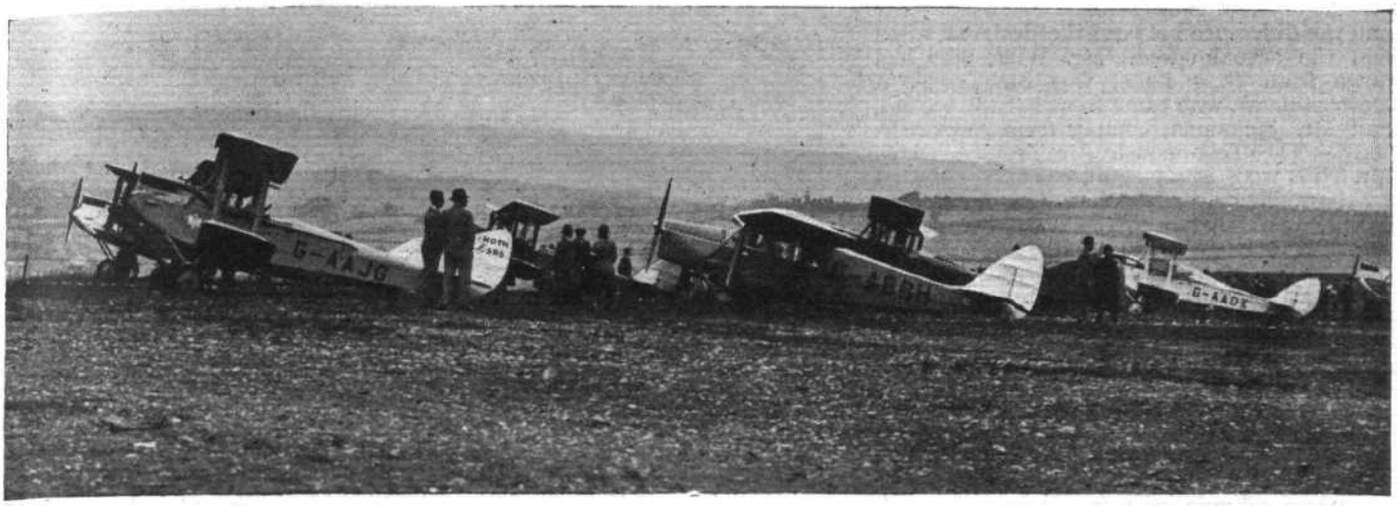
Perhaps the most amazing exhibition of the afternoon was that given by Flight-Lieut. Armour on Mr. St. Barbe's Gipsy Moth. His crazy flying close to (and sometimes on) the ground seemed to defy all the laws of gravity, aerodynamics and several other sciences. His landing was one of the most perfect examples of judgment one could possibly hope to see. Starting from a few hundred feet, Armour did a terrific sideslip with his wings nearly vertical. Pulling out within a few feet off the ground and heading into the wind, the machine came to rest in an incredibly short space.

Flying Officer Snaith demonstrated the excellent manœuvrability of the little Comper "Swift," and Flight-Lieut. Stainforth showed how controllable is the Junkers Junior in inverted flight, his "falling leaf" in the inverted position being particularly good.

The Gwynn Madocks Cup was presented to Mr. Douglas by Maj.-Gen. C. E. Corkran, C.B., C.M.G., and this brought the official programme to a close. Mr. Quilter, of the Grenadier Guards, winner of the Gwynn Madocks Cup last year, did a parachute drop from a Puss Moth piloted by Captain Hope.

Major-General Corkran presenting the Cup to the Winner, Mr. A. V. C. Douglas, of the Scots Guards. (FLIGHT *Photo.*).

FLYING EXTRAORDINARY: Flight Lieut. Armour giving an exhibition of crazy flying with one wheel on the ground, and a wing tip dragging through the grass. (FLIGHT *Photo.*).



PROGRESS: **Three generations of Moths at Haldon. The standard Gipsy Moth (left). The Coupé Moth (right) and Puss Moth (centre).**

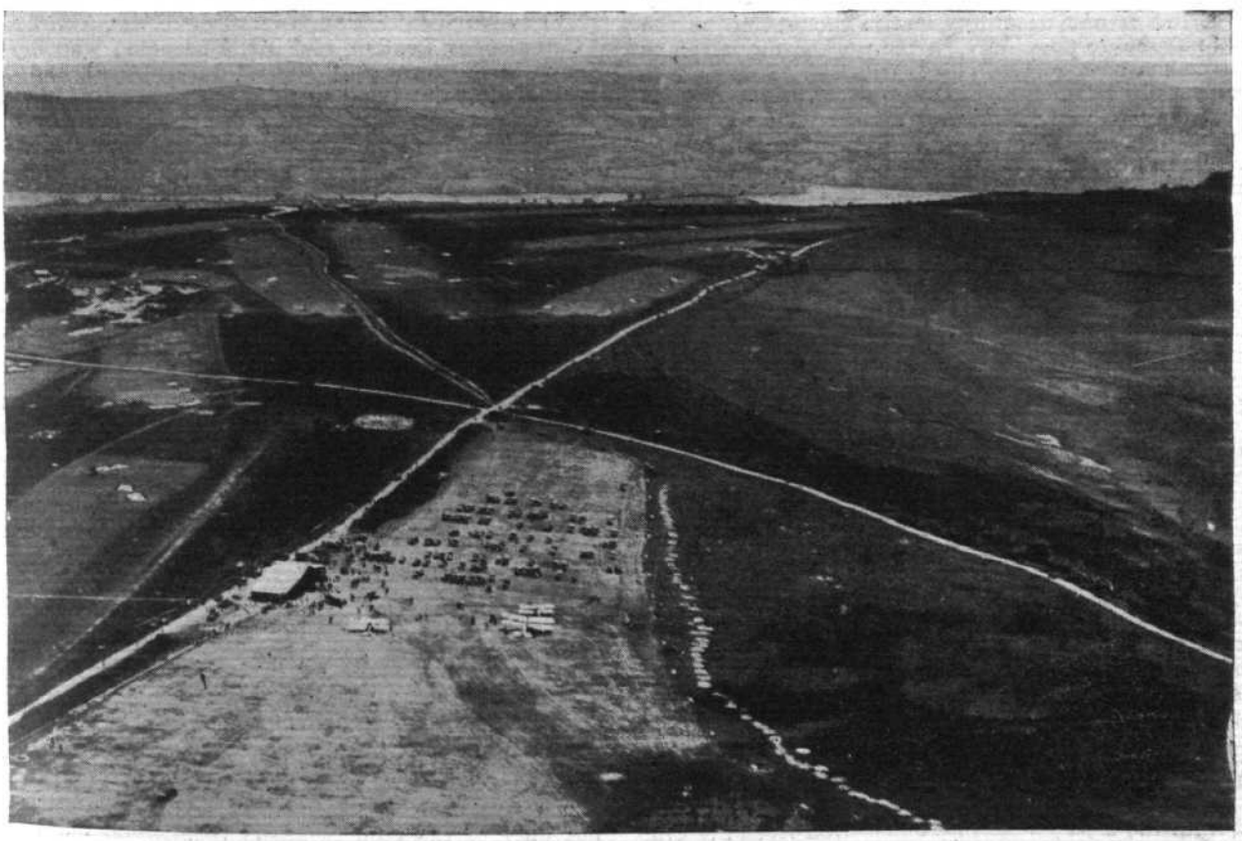
THE HALDON RALLYE

GENIALITY on the part of the undefeatable Mr. Parkhouse overcame all the drawbacks occasioned by the weather for which Haldon Meetings will soon become famous.

After the debacle of last year, when everyone wore goggles while on the aerodrome as some protection against the dust which the unkind and stormy weather was whirling about in all directions, we all hoped that Mr. Parkhouse would have the best of luck on this, his second meeting, and while he did so to a certain extent, there was plenty of room for improvement. Although the best part of the country, from Heston downwards, was blessed with reasonable visibility, Haldon itself, and the coast adjacent, was blanketed with typical Devon low clouds, which formed as soon as the sea air met the cliffs, and then dissipated some ten miles inland. Incidentally the formation of these clouds presents an extremely interesting sight. As one approaches the cliffs from the landward, they appear to have a row of steam jets just below their tops. What actually happens is that the air acquires the correct temperature and humidity as it is blown over the sea, to form cloud when it meets the cliffs, with the result that this cloud seems to flow from the top of the cliffs.

At the aerodrome, which is some little way inland, the clouds were low, but not so low that flying was very seriously incommoded. The wind, however, was very gusty, and this blew the well-known Haldon aerodrome dust everywhere where it was not wanted. By next year there is every hope that this trouble will have been overcome, as the grass has now got a good start, and, given reasonable weather conditions, it should have established a firm hold before the next meeting.

The first item on the programme was the arrival of the participants in the Rallye. As was explained last week, this was decided by a formula involving the distance flown



A MOORLAND AERODROME: **Haldon Aerodrome from the air, showing a corner where some of the cars were parked.**

and the difference between the declared speed and the actual speed. Mr. Wills, who had flown from Stag Lane, was the first, Mr. Downes-Shaw, who came from Bristol, second, and Mr. Jackaman, coming from Newcastle, third. The Teignmouth Air Trophy, which Mr. Wills won, is a magnificent cup presented by the residents of Teignmouth, and Mr. Wills found, on trial, during the subsequent evening, that its capacity was ample for the needs of all the ladies present to drink to the success of his attempt at retaining the trophy next year! The second prize, also a large and handsome cup, was presented by the Millbay Laundry Co.—no doubt they are grateful to the Haldon dust for its part in their prosperity!

LAW AND ORDER: The local constabulary helped a lot at the Haldon Meeting.

After the Rallye there was a series of aerobatic demonstrations by such well-known pilots as Mr. Thorn, with his Avian (Hermes), Mr. Buckingham, Moth (Gipsy), Mr. C. Byron, Widgeon (Cirrus III), Capt. Broad, Puss Moth (Gipsy III), Flt.-Lt. Schofield, Desoutter (Hermes).

The last-named demonstration must have come as a shock to those who have considered that the Desoutter, being a cabin machine, was incapable of being thrown about. As a matter of fact, Flt.-Lt. Schofield has made rather a speciality of aerobatics in this machine, and on Saturday he gave a show at Heston for the Household Brigade Flying Club at 3 p.m., and then immediately flew down to Haldon for this second exhibition. His slow and fast rolls are perfectly done, and he makes inverted flying appear quite simple—probably it is to him.

No. 17 Squadron R.A.F. had sent down a flight of Bulldogs from Upavon, and these carried out some formation flying and aerobatics. The mere fact that they were Service aircraft is sufficient criterion of the excellence of their display, and it would be invidious for us to attempt to criticise it in any way. This is probably the first time that Bulldogs have appeared at a meeting such as this, and, from that point of view, their show was particularly interesting. An amusing incident arose out of their presence, in that a local paper informed its readers that among the "*craft present was a fourth of the Royal Airforce, a Buldog fighter.*" ! !

Miss Spooner gave a utility demonstration on her Moth by taking off and flying a circuit and then landing, folding the wings and drawing the machine into a small enclosure representing a small hangar.

Capt. Broad secured a Cup for the balloon bursting competition, and later Flt.-Lt. Rawson demonstrated the Autogiro. This time fate was very much kinder than last year, when the wind caught his machine and blew it over just after it had landed.

THE INVERTED FALLING LEAF.—An American newspaper has the following account of the performance of this manœuvre:—

". . . At the controls of the swift little fighter developed for acrobatic flying, Lt. Alford J. Williams, Jr., considered by many to be the greatest pilot the Navy and the country ever produced, has sung his swan song to service aviation by performing a feat of aerial acrobatics *never before accomplished*—an inverted 'falling leaf' in which each pendulum-like swing of the plane was checked just at the instant it threatened to develop into a fatal 'outside spin.'

The inverted or outside falling leaf is thought to be the last aerial manœuvre possible with the present-day airplane which never has been successfully performed. Many pilots have accidentally fallen into the first phase of the outside falling leaf only to find themselves almost instantly in an upside-down-spin, which in several cases has proved fatal.

Lt. Williams' performance of the feat was the result of many months of planning in advance. He worked the manœuvre out to its last detail mentally, and by the use of a model airplane.

Conquering of the inverted falling leaf is a part of the long struggle of Lt. Williams to make flying safer. He believes that mastery of this manœuvre by pilots, especially military pilots who must resort to acrobatics, would decrease the danger from outside inverted spins.

His services were volunteered for the hazardous tests and in recognition of his feats he was awarded the Distinguished Flying Cross.

Lt. Williams has resigned from the Navy to continue work on the development of high-speed planes. . ."

Without wishing to belittle the performance of Lt. Al. Williams, we feel sure that those who fly would like it to be known that this particular stunt has been done many many times in this country, and this year, at our common or garden flying meetings, both service pilots and club-trained private owners have done it on various ordinary light aeroplanes. We cannot credit Lt. Williams with saying that this has never been done before, and must attribute this to the journalist, who, no doubt, as is all too often the case, has little or no knowledge of aviation.

SHEFFIELD AERODROME.—The question of the establishment of a municipal aerodrome in Sheffield, at Coal Aston, is to be raised again by the Sheffield Flying Club. Within the next few days a deputation from the Club is to wait upon the Lord Mayor of Sheffield.

BROOKLANDS SCHOOL OF FLYING.—The total flying hours of the School during the month of May amounted to 190. During this period, Messrs. Ruutz-Rees and Oglivie-Forbes completed all tests for their "B" Licences, also the following pupils have qualified for "A" Licences: Messrs. Bowles, Oliver, Stewart, Moncreiff, Wright, Taylor, Wickstead.

The Whitsun Holidays found the School hard at work joy-riding at Brooklands, Northampton, Clacton and Runnymede. New pupils are continuing to roll up, whom we hope will soon be joining the ranks of private owners.

Commander Leathes and Mr. Bharucha, who flew off to Kenya in the former's "Moth" during April, had the misfortune, after nearly completing the journey, of having their machine partially damaged by fire commenced by a hostile tribe whilst they were lunching at a stopping place *en route*; we understand it was a case of mistaken identity.

LANCASHIRE AERO CLUB.—The Club is, by the kindness of Lady Wakefield, to be represented in the King's Cup Race, and the Hermes Avian G-AAWI has been entered and Flt.-Lt. John Oliver has been selected as pilot. In addition to Flt.-Lt. Oliver, four other members of the club will be piloting machines in the King's Cup Race—namely, T. N. Stack, J. C. Cantrill, I. Maxwell, Flying Officer Tomkins, and Miss W. S. Brown. As will be generally known, Woodford Aerodrome will be a turning point, and the club is holding a garden party on that day, at which visiting pilots will be cordially welcome.

G-EBQL is again in service, and A. V. Roe and Co. are again to be congratulated upon the expedition they showed in the repair of this machine. It is always a problem to keep a substantial number of any fleet in commission, and the club appreciates the assistance given by A. V. Roe and Co., in their case.

The new tennis court, which is part of the club's scheme for extensive improvements moving towards making the club a country club in the true sense, is now open, and appears to be extremely popular. A new garden is also being formed to increase the amenities of the clubhouse, and it is hoped before long that addtional club premises will be available which will, it is hoped, greatly add to the attractiveness not only to the club members themselves, but to visiting pilots and their friends, who are always welcome.

THE LIGHT AEROPLANE CLUBS.

THIS week we are publishing the latest list of Light Aeroplane Clubs, together with the aerodome at which they operate and the addresses of the Secretaries or Managers.

We hope that this list will be found of use to our readers, and that they will co-operate with us by pointing out any alterations which may occur from time to time or any errors which may have crept into the present list.

Aberdeen Aero Club.—Secretary, 123½, Union Street, Aberdeen.

Aircraft Operating Co. Flying Club.—Secretary, 8, New Square, Lincoln's Inn, London, W.C.2.

Bedfordshire Aero Club.—Secretary, "Winsthorpe," The Embankment, Bedford.

Berks, Bucks, and Oxon Aero Club (N.F.S.), Woodley, Reading.—Secretary, 12, Highmoor Road, Caversham, Reading.

Blackpool Flying Club, Squire's Gate, Blackpool.—Secretary, Squire's Gate, Blackpool.

Bristol and Wessex Aeroplane Club, Ltd., Bristol Air Port.—Manager, Bristol Air Port, Bristol.

Britannia Aeroplane Club.—Secretary, Royal Naval College, Dartmouth.

Brooklands Aero Club, Brooklands.—Secretary, Brooklands, Byfleet, Surrey.

Cinque Ports Flying Club, Lympne, Kent.—Secretary, 114, High Street, Hythe, Kent.

Cranwell Flying Club, Cranwell.—Secretary, R.A.F. Training College, Cranwell, Lincs.

Derby and District Flying Club.—Secretary, "Beachwood," Snelstone, nr. Cubley.

Dunlop Aero Club.—Secretary, Fort Dunlop, Erdington, Birmingham.

Experimental Light 'Plane Club.—Secretary, Attenborough, Notts.

Felixstowe Light Aeroplane Club, Felixstowe.—Secretary, Marine and Experimental Establishment, R.A.F., Felixstowe.

Halton Aero Club, Halton Camp.—Secretary, R.A.F. School of Technical Training, Halton Camp, Bucks.

Hampshire Aeroplane Club, Hamble.—Secretary, Hamble Aerodrome, Hants.

Hanworth Club (N.F.S.), Hanworth.—Manager, Hanworth Park, Middlesex.

Hastings Aero Club.—Secretary, 46, Havelock Road, Hastings.

Household Brigade Flying Club, Heston Air Park.—Secretary, Guards' Club, W.1.

Hull Aero Club (N.F.S.), Hedon.—Manager, Hedon Aerodrome, Hull.

Isle of Wight Flying Club, Shanklin.—Secretary, Shanklin, Isle of Wight.

Kent Flying Club, Bekesbourne.—Secretary, Bekesbourne, near Canterbury, Kent.

Lancashire Aero Club, Woodford.—Secretary, Woodford Aerodrome, Cheshire.

Leicestershire Aero Club, Desford.—Secretary, 3, Granby Street, Leicester.

Liverpool and District Aero Club, Hooton.—Secretary, Hooton, Cheshire.

London Aeroplane Club, Stag Lane Aerodrome, Edgware.—Secretary, 3, Clifford Street, W.1.

Midland Aero Club, Ltd., Castle Bromwich.—Secretary, 22, Villa Road, Handsworth, Birmingham.

Newcastle-on-Tyne Aero Club, Cramlington Aerodrome.—Secretary, 41, Coniston Avenue, Newcastle-on-Tyne.

Norfolk and Norwich Aero Club, Mousehold.—Secretary, Mousehold, Norwich.

Northamptonshire Aero Club, Ltd., Sywell.—Secretary, 20, Market Square, Northampton.

Nottingham Flying Club (N.F.S.), Tollerton.—Manager Tollerton.

Plymouth Aero Club, Boborough.—Secretary, Dominion Chambers, Drake's Circus, Plymouth.

R.A.E. Aero Club, Farnborough.—Secretary, Royal Aircraft Establishment, Farnborough, Hants.

Scottish Flying Club, Ltd., Moorpark Aerodrome.—Secretary, Moorpark Aerodrome, Renfrew.

South Staffordshire Flying Club (N.F.S.), Stoke-on-Trent. Secretary, Stoke-on-Trent.

Southern Aero Club, Shoreham.—Secretary, Shoreham Aerodrome, Sussex.

Suffolk and Eastern Counties Aeroplane Club, Hadleigh.—Secretary, Hadleigh, Suffolk.

Yorkshire Aeroplane Club, Ltd. (N.F.S.), Sherburn-in-Elmet.—Manager, Sherburn-in-Elmet, Leeds.

A NEW AVRO LIGHT 'PLANE

The "Avian Monoplane" with "Genet Major" engine has been designed as a sports version of the standard "Avian." Note the very beautiful lines.

AIR TRANSPORT

THE "VEDETTE MARK VI"

A Canadian Vickers Metal Amphibian

CANADIAN VICKERS, LTD., have, in the "Vedette Mark VI," illustrated on this page, produced yet a further development of a type which has been constructed in large numbers in a variety of new forms during the past two years. The type illustrated, which has passed Dominion Government acceptance trials without any trouble, is the first of three new versions offered, and although this particular machine has been designed mainly for photographic work, other models will be used for commercial work, forestry patrol, and training.

As a commercial machine, for general freight carrying or passenger and mail transport, it should prove entirely satisfactory, especially in such countries as Canada. It is a biplane pusher flying-boat, designed to take the Armstrong Siddeley "Lynx," the Wright J.6, the Pratt and Whitney "Wasp Jnr.," or similar powered engines.

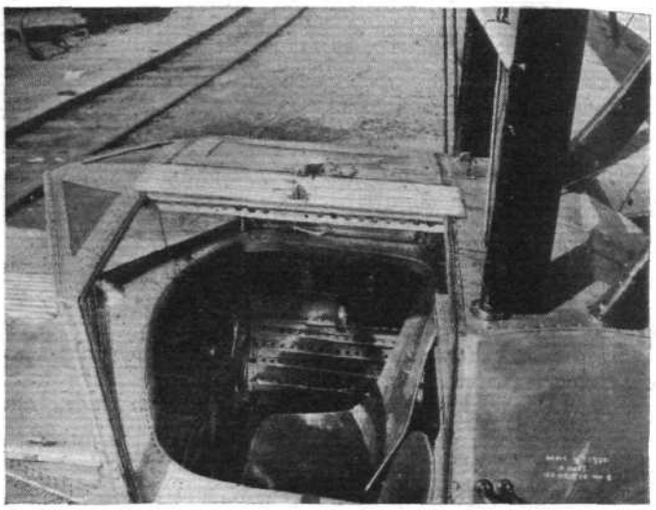
The hull is made of Alclad with stainless steel fittings throughout, designed on the longitudinal method of construction, and divided by complete watertight bulkheads into four compartments. Wood rubbing strips, easily replaced, are fitted along the chines and keel, and a walkway is provided along the whole length of the hull top.

In the model illustrated, dual controls are fitted in a roomy enclosed cockpit immediately forward of the wings, the large windows (affording an excellent view) being arranged to fold away, so that the machine can be flown with a semi-open cockpit. The photographer is accommodated in the nose in a large open cockpit arranged with a quickly detachable wind-screen.

In the commercial model, however, the pilot is located forward, with four passengers and space for baggage behind. If preferred, the pilot can be in an open cockpit, but when enclosed, the cabin roof is arranged so that it can be collapsed very quickly for mooring purposes.

Amphibian gear and Handley Page Automatic Slots can be fitted if desired; our illustration shows a new design of quickly detachable beaching gear with "castor" tail wheel, which has proved very satisfactory in service.

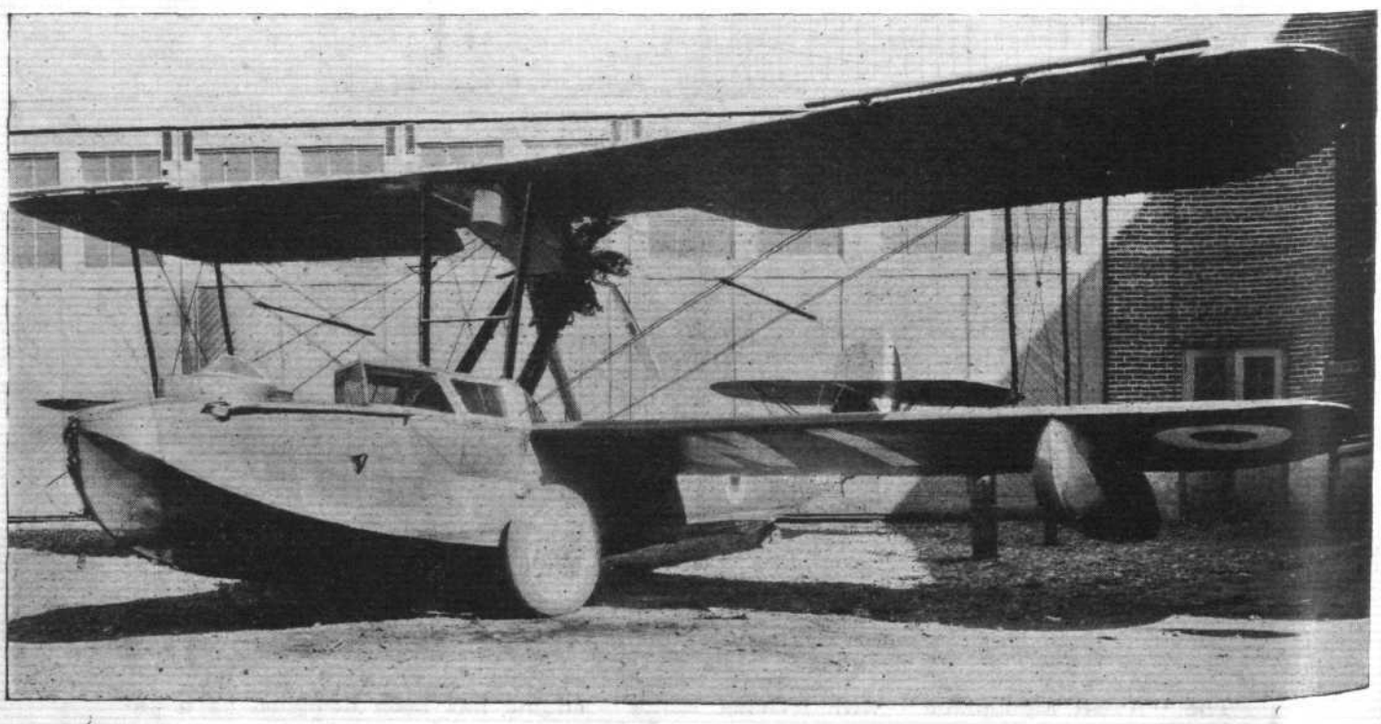
Fitted with a Wright J.6-R.975 300-h.p engine, the



The pilot's cockpit in the "Vedette Mk. VI" (Photographic model).

"Vedette Mark VI" has the following weights and performance :—

All-up weight	4,500 lb.
Weight empty, but fully equipped	2,698 ,,
Useful load	1,802 ,,
Payload and pilot	1,281 ,,
Maximum speed at sea level	110 m.p.h.
Initial climb at sea level	650 f.p.m.
Service ceiling	12,000 ft.
Landing speed	54 m.p.h.
Cruising speed	95 m.p.h.
Take-off, approx.	12 seconds.
Duration	4 hours.



CANADIAN VICKERS "VEDETTE MARK VI": A metal-hull flying-boat, that shown being for photographic work; a commercial model for passengers and freight is also produced.

FOG FLYING EXPERIMENTS

Air Ministry's Successful Test

THE prevalence of fog is one of the greatest hindrances to efficient and rapid transport, whether by land, sea or air. Flying, which is the newest mode of motion, is perhaps even more severely handicapped than transit by sea or land, because of the impossibility of a considerable reduction in the speed of flight of present-day aircraft. If an aeroplane flies through a fog at all, it must fly at a considerable speed, and this makes the risk proportionately greater.

In recent years a number of experiments have been carried out, notably in the United States, in order to develop ways in which aeroplanes might be landed on a fog-covered aerodrome. As was natural, the first attempts were made in clear weather by covering the pilot's cockpit with a hood and carrying an auxiliary pilot unhooded for safety sake; the machine was landed by the hooded pilot, who controlled the machine solely in response to instrument indications ingeniously designed to bring the machine safely down to the aerodrome despite the lack of any visual assistance.

A step forward in this investigation was made on Wednesday, the 18th instant, when a pilot of the Royal Air Force carrying one of the Air Ministry Scientific Research Staff as a passenger, and flying in a standard Avro aeroplane, made a succession of five successful landings at Farnborough through a real fog which rose to a height of 90 ft. above the ground.

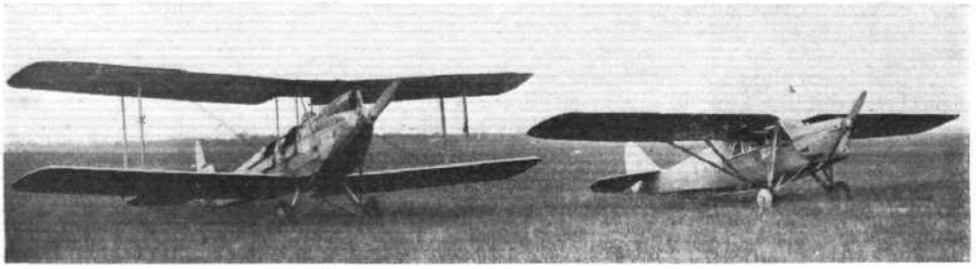
The apparatus used was of the simplest possible character. It consisted of a small tethered sighting balloon 400 ft. above the ground, and about half-a-mile from the aerodrome, a pitch and yaw indicator on the dashboard, and a weight suspended by wire a few feet below the landing carriage of the aeroplane. The aeroplane left the ground for the first trial at 4.45 a.m., and flew through fog until it got into clear air above, and then made use of the known height and position of the balloon to return to the aerodrome, gliding past the balloon at an angle indicated by the instruments and landing on the surface of the aerodrome by means of the indications given to the pilot by the lighting up of a red lamp on the dashboard at the moment when the suspended weight touched the ground. The test was entirely successful, and the pilot reported no difficulty. The machine took off again, and carried out an exact repetition of the first trial. This also was successful. Thereupon three further similar experiments were carried out, making in all five take-offs and five landings.

From observations made from the top of the balloon shed at Farnborough, it was noted that once the aeroplane disappeared from view in the top of the fog it was not seen again until after it had landed and taxied out into a clearer area near the hangars. Though the clearer areas of the fog moved somewhat during the test, the aircraft was not visible from the hangars at the moment of contact in any of the landings. It is considered that these experiments indicate a real advance in the technique of fog landing, and the method is one which it is expected will be of great practical use.

A GOOD USE FOR AIRCRAFT

THE Associated Leicestershire Quarries staged a demonstration of the utility of aircraft in their business on Friday last, June 20.

Mr. Lindsay Everard lent his Puss Moth and a Gipsy Moth for the purpose, and these two machines piloted by Flt.-Lt. S. David, and Mr. C. Hurst were sent from Desford Aerodrome at Leicester, the former to Grantham, Heston, Cambridge, and back to Desford, while the latter went to Northampton, Heston, Stag Lane, Desford. At each of these places prominent people such as the county surveyor or city engineer were gathered, and they received from the aircraft samples of the road stone which the A.L.Q. market.



The "Gipsy Moth" and "Puss Moth" lent by Mr. W. L. Everard to the A.L.Q. for their demonstration.

At Heston a lunch was arranged. Among those present were:—Lord Ponsonby, Parliamentary Secretary, Ministry of Transport; Air Vice-Marshal Sir W. Sefton Brancker, A.F.C., Director of Civil Aviation; Mr. F. Montague, M.P., Under-Secretary of State for Air; Col. C. H. Bressey, C.B.E., Chief Engineer Roads Department, Ministry of Transport; Capt. H. H. Balfour, M.P., Secretary Air Committee, House of Commons; Mr. W. Lindsay Everard, M.P., President Leicestershire Aero Club; Capt. A. C. N. Dixey, M.P.; Mr. E. Winterton, M.P.; Mr. H. J. Nias, Chairman Heston and Isleworth U.D.C.; Mr. F. T. Hart, Vice-Chairman, Heston and Isleworth U.D.C.; Mr. A. Dryland, County Surveyor of Middlesex; Mr. J. G. Carey, Surveyor Heston & Isleworth U.D.C.; Mr. H. N. St. V. Norman, Heston Air Park; Mr. F. A. Muntz, Heston Air Park; Capt. C. H. Martin, Mountsorrel Granite Co., Ltd.; Mr. B. Everard, The Bardon Hill Quarries (Ellis & Everard), Ltd.; Mr. N. F. Spence, The Croft Granite, Brick & Concrete Co., Ltd.; Mr. J. A. Manning, The Croft Granite, Brick & Concrete Co., Ltd.; Mr. P. G. Parkman, The Enderby & Stoney Stanton Granite Co., Ltd.; Mr. P. L. Preston, The Cliffe Hill Granite Co., Ltd.; Mr. J. H. Robinson, The Whitwick Granite Co., Ltd.

During the flight from Grantham to Heston, the passenger in the Puss Moth made use of the A.A. message service by dropping a message at the A.A. telephone box at Corby Cross Roads near Market Harborough, which was transmitted to the chairman of the A.L.Q., at Heston. Everything was carried out to schedule and the firms concerned are to be congratulated on their enterprise in thus fostering the growth of aviation by such a practical and direct means. Let us hope that the use of aircraft for the distribution of samples and such like business will soon be taken up by many more firms.

Our Blue Air Mail Pillar Boxes.

Special posting boxes have been erected in the City and West End of London for the reception of air mail correspondence only. These boxes, which are painted blue, were available for posting on June 23, and are located at the following places:—

King Edward Street, E.C.1 (Outside G.P.O.); Outside Ludgate Circus Branch Post Office, E.C.4; Moorgate, E.C.2 (opposite Britannic House); Front of Royal Exchange, E.C.3; Outside W.C. District Post Office, High Holborn, W.C.; High Holborn, W.C. (South Side, opposite Staple Inn Buildings); East Strand, W.C. (near Surrey Street); Outside Charing Cross Branch Post Office, W.C.; Oxford Circus, W.1 (N.E. side); Piccadilly Circus, W.1 (opposite Pavilion Theatre); Victoria Station, S.W.1 (entrance to forecourt).

Additional boxes will be provided shortly at:—Charles Street, Haymarket, S.W.1 (front of Imperial Airways Offices); Outside Parliament Street Branch Post Office, S.W.1.

Air Mails for European Countries

THE Postmaster-General announces that as from June 2 the inclusive charge for air letters, etc., to any European country to which an air service is advertised will be as follows: First ounce, 4*d*.; each subsequent ounce, 3*d*. These charges will include both ordinary postage and air fee. The countries to which the uniform charges are applicable are:—Austria, Belgium, Czecho-Slovakia, Denmark, Finland, France, Germany, Greece, Holland, Hungary, Italy, Norway, Poland, Russia, Sweden, Switzerland.

KINGSFORD SMITH SUCCEEDS

East to West Atlantic Crossing Accomplished

SQDN.-LDR. KINGSFORD SMITH and his three companions—Mr. Van Dyk, Capt. Saul, and Mr. Stannage—left Ireland on their East to West Atlantic flight at 04.25 hours last Tuesday, June 24, in the tri-engined Fokker monoplane "Southern Cross." The decision to start was made after the receipt of favourable weather reports from the Air Ministry on Monday, and the machine was flown to Portmarnock Strand, near Dublin, that evening. The full load of petrol was pumped on board soon after its arrival, and all made ready for a start at dawn. It was the intention of Kingsford Smith to keep the start as quiet as possible, but the news leaked out and a considerable number of Dubliners set off for Portmarnock in all kinds of conveyances.

At 03.30 hours on Tuesday Mr. C. C. Maidment (of the Wright Aero. Co.) began to warm up the engines and by this time a crowd of about 5,000 people were gathered on the sand dunes. Shortly before 4 o'clock the Governor-General of the Free State arrived with the members of the crew. The visibility began to improve and at 04.20 hours the members of the crew made their "Cheerios" to the many friends surrounding them and climbed on board.

The runway was remarkably good, and the giant machine found really good support. She taxied along it for something over 2,000 yards before getting up into the air. After the machine had reached a height of about 100 ft. it turned completely round and disappeared off towards the West.

Since leaving she was in constant radio communication with the shore. Her position at 11.00 hrs. was given as about 450 miles west of the Irish coast. Later messages indicated that head winds were being met with, but all on board seemed confident of reaching the American coast without any difficulty. There was sufficient petrol on board to last them for 38 hrs. at the normal cruising speed of 100-115 m.p.h. A later message reported conditions slightly overcast, and ocean like a mill-pond. At 4 p.m. they gave their position as Lat. 51.9—longitude 29 N.N.W., and were flying in fog.

Shortly before 4 a.m. (B.S.T.) on June 25 they were 100 miles from Cape Race, and were experiencing trouble in getting their bearings. They flew thus for about 5 hrs., and finally located the landing ground at Harbour Grace shortly after 11.30 a.m. After circling the ground, they landed at 11.53 a.m., and thus accomplished the second successful Atlantic crossing from East to West.

Owing to pressure on our space this week, we are unable to record more concerning this latest achievement, but next week we hope to refer to it again in greater detail.

THE KING'S CUP AIR RACE

THE King's Cup Air Race will start from Hanworth at 7 a.m., July 5, and the winner is expected to cross the line at about 5 p.m. Flying will be in progress all day at Hanworth, displays being given at 12 noon, after the competing machines have departed, and an air pageant will be held between 3 p.m. and 5 p.m.

Admission to the Club enclosures will be by ticket, which should be obtained in advance—particulars of which are given below. Public enclosures will also be available; admission 1*s.*, 2*s.* 6*d.* and 5*s.*, cars 2*s.* 6*d.* Luncheon, tea, and refreshments (fully licensed) will be supplied in marquees in all enclosures. Tickets for Club enclosures are as follows:—

Members of Royal Aero Club.—Admission free for members on presentation of Royal Aero Club badge; motor-car, 2*s.* 6*d.*; guests accompanying member, 5*s.* Tickets from Hall Porter, Royal Aero Club.

Members of Associated Light Aeroplane Clubs.—Admission for member, 5*s.*; guests accompanying member, 5*s.*; motor-car, 2*s.* 6*d.* Tickets from Club Secretary.

Members of Royal Air Force Club.—Admission for member; 5*s.*; guests accompanying member, 5*s.*; motor car, 2*s.* 6*d.* Tickets from Club Secretary.

Members of N.F.S. Clubs.—Admission free for member; motor car, free; guests accompanying member, 5*s.* Tickets from the Secretary, National Flying Services, Ltd., Grand Buildings, Trafalgar Square, W.C.2, or from Club Secretary.

Private Owners and Friends arriving by Air.—Admission and landing, free. Tickets from the Secretary, National Flying Services, Ltd., Grand Buildings, Trafalgar Square, W.C.2.

At Barton (Manchester)

IT should be noted that competitors in the King's Cup Race will land at the airport of Manchester, Barton, which will be a "control." Competitors will remain at Barton about 30 minutes, the first competitor being expected at about 11 a.m. From 3 p.m. there will be a special air pageant.

AERIAL POLICE: As previously reported in "Flight," New York Police have been equipped with a number of Savoia S-56 amphibian flying-boats for aerial patrol work. These are seen here taking part in a procession through New York City, mounted on special General Motor lorries.

THE ROYAL AIR FORCE

London Gazette, June 17, 1930.

General Duties Branch

The following Pilot Officers are promoted to rank of Flying Officer :—A. M. Cowell ; April 8. J. A. Easton ; June 6. J. D. Rutherford, K. R. Coates, G. P. Charles, H. M. Pearson ; June 15.

The following are placed on retired list at their own request :—Group Captain A. B. Burdett, D.S.O. ; June 12. Sqdn.-Ldr. G. S. Trewin, A.F.C. ; June 17. Flying Officer H. A. Howes is transferred to Reserve, Class C ; June 5. The short-service commissions of the following Pilot Officers on probation are terminated on cessation of duty :—N. H. Bantoft ; June 18. J. H. Bell ; June 13. Lieut. F. G. Wynne, R.N., Flying Officer, R.A.F., ceases to be attached to R.A.F. on return to Naval duty ; June 2.

Medical Branch

Flt.-Lieut. W. D. McKeown, M.B., B.Ch., relinquishes his short-service commn. on account of ill-health ; June 18.

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

C. W. J. Allen is granted a commn. in Class AA (i) as Pilot Officer on probation ; June 2. C. J. Sanders is granted a commn. in Class A as a Pilot Officer on probation ; June 3. The following Pilot Officer on probation is confirmed in rank :—C. G. Higgins ; June 5.

Flying Officer C. E. Baldwin relinquishes his commn. on completion of service ; Feb. 17.

Accountant Branch

Flying Officer A. L. Palmer relinquishes his commn. on completion of service ; April 11.

Medical Branch

Flt.-Lieut. R. F. T. Grace, M.D., is re-employed with Regular Air Force for a further year ; May 19. Flt.-Lieut. T. M. Walker, M.R.C.S., L.R.C.P., is re-employed with Regular Air Force for a period of one year ; June 2.

AUXILIARY AIR FORCE

General Duties Branch

No. 608 (North Riding) (Bomber) Squadron.—W. H. Davies to be Sqdn.-Leader and to command the Squadron ; April 28.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified :—

General Duties Branch

Wing-Commander D. A. Oliver, D.S.O., O.B.E., to Half-pay List, 22.6.30.

Squadron-Leaders : J. M. Robb, D.S.O., D.F.C., to No. 3 Flying Training Sch., Grantham, 4.6.30. G. E. Godsave, to H.Q., Coastal Area, 16.6.30.

Flight-Lieutenants : K. L. Harris, to Half-pay List, 17.6.30. F. J. W. Mellersh, A.F.C., to Oxford University Air Sqdn., 19.6.30. M. H. Garnons-Williams, to Armament and Gunnery Sch., Eastchurch, 13.6.30. C. Guppy, to Station Flight, Upper Heyford, 19.6.30. H. A. J. Wilson, O.B.E., to R.A.F. Depot, Uxbridge, 13.6.30. J. H. Hagon, to Station H.Q., Donibristle, 12.6.30. H. F. Bradley, to No. 10 Sqdn., Upper Heyford, 10.6.30. R. K. Emerson, to H.Q., R.A.F., Middle East, Cairo, 1.6.30. A. D. Macdonald, M.C., to R.A.F. Depot, Uxbridge, on appointment to a short service commn. (Supplementary List), 16.6.30. H. S. Sandiford, to R.A.F. College, Cranwell, 16.6.30. R. A. Seaton, to R.A.F. Depot, Uxbridge, 26.5.30. H. G. P. Ovenden, to No. 58 Sqdn., Worthy Down, 26.5.30.

Flying Officers : A. P. Wayte, to R.A.F. Depot, Uxbridge, 26.5.30. A. L. T. Naish, to No. 55 Sqdn., Iraq, 13.6.30. R. A. R. Robinson, to R.A.F. Depot, Uxbridge, 6.6.30.

Pilot Officers : M. V. de Satge, to No. 504 Sqdn., Nottingham, 12.6.30. G. G. Barrett, to No. 203 Sqdn., Iraq, 7.6.30. F. R. Drew, to No. 203 Sqdn., Iraq, 7.6.30.

Stores Branch

Squadron-Leader F. E. J. Coates, to Station H.Q., Manston, 2.7.30.

Flight-Lieutenant C. W. Rugg, to R.A.F. Reception Depot, West Drayton, 5.6.30.

Flying Officer H. J. Young, M.B.E., to R.A.F. Depot, Uxbridge, 1.6.30.

Accountant Branch

Flight-Lieutenant D. F. A. Clarke, to R.A.F. Depot, Aboukir, Egypt, 5.6.30.

Medical Branch

Squadron-Leaders : G. S. Marshall, O.B.E., to R.A.F. Depot, Uxbridge 15.5.30. W. F. Wilson, M.C., to R.A.F. Depot, Uxbridge, 26.5.30.

IN PARLIAMENT

Royal Air Force and Films

Mr. Holford Knight on June 17 asked the Under-Secretary of State for Air for what reasons facilities were refused to a British film company for making a film, which was sponsored by the Imperial Air League about the Indian air mail and the work of the Royal Air Force in guarding its routes ?

Mr. Montague : The Minister for Air is opposed to the participation of officers and other ranks of the Royal Air Force, under orders, in the making of films which inevitably involve a pseudo-romantic and theatrical atmosphere entirely unsuited to their profession and traditions. No scenario as yet submitted to the Air Ministry, including that under reference, has been free from these drawbacks.

Bombay Civil Aerodrome

Maj. Pole asked the Secretary of State for India whether, in view of the fact that the obstacle to any early decision on the proposal for the establishment of a regular air mail service from Karachi to Bombay is the absence of an all-weather landing ground at Bombay, he can give information as to the steps that are being taken to remedy this deficiency ?

Mr. Benn : A substantial provision has been made in the Budget for 1930-31 for work in connection with the raising and draining of the Government civil aerodrome at Juhu, near Bombay, and it is hoped that it will be possible to provide additional funds in 1931-32 to complete the work.

Air Route Survey to Canada

Mr. Albery asked the Under-Secretary of State for Air what financial assistance, if any, is being given by the Government towards the expenses of surveying an airship route to Canada, via the Faröe Islands and Greenland ; and if he can give the House any information concerning this proposal ?

Mr. Montague : No financial assistance is being given, but at the request of the organisers the Air Ministry is putting the services of an officer of the Royal Air Force at the disposal of the expedition and is also lending certain meteorological instruments. I am informed that the Admiralty and the War Office are lending, respectively, a Naval medical officer and an Army signals officer, as well as chronometers, wireless equipment and certain other instruments. The object of the expedition is to make a survey and collect the necessary meteorological and geographical data with a view to determining the practicability of the establishment of a regular air route between Europe and Canada, via Greenland. The reference to " air route " is not particularly confined to airships. With regard to subsidies or financial support, the whole matter is being considered on this side and the Canadian Government side.

Death of Mr. E. A. Sperry

Mr. Elmer Ambrose Sperry, the inventor of the gyro-compass, died in New York on June 16, at the age of 69. He was a prolific inventor of electrical appliances, for which he received many awards, including decorations from the Tsar of Russia and the Emperor of Japan.

Death of Mr. F. R. Smith

We regret to announce the death, on Sunday, June 15, of Mr. F. R. Smith, Chief Engineer of Armstrong Siddeley Motors, Ltd. Mr. Smith had been with the company for over 15 years, and his loss will be regretted by his many friends in the trade and in Coventry.

PERSONALS

Married

Rodney Part, R.A.F., was married on June 7, at St. Simon's Church, Southsea, to Eileen Margaret, only daughter of Mrs. and the late Mr. H. Fillingham-Williams.

The wedding of Flight-Lieut. Ronald Ivelaw-Chapman, D.F.C., A.F.C., son of Mr. and Mrs. J. Ivelaw-Chapman, Windybrake, Cheltenham, and Miss Grace Elizabeth Margaret Shortt took place at Wrotham Church, Sevenoaks, Kent, on June 12. The bride is the only daughter of Mr. and Mrs. C. W. Shortt, Orchard Cottage, Borough Green, Sevenoaks.

The marriage took place on June 17 at the Church of St. Peter and St. Paul Albury, Surrey, of Flight-Lieutenant Francis Charles Thorn Rowe, only son of Mr. and Mrs. F. C. Rowe, of Mill End, Chagford, Devon, and Dr. Constance Isobel Patullo, of 144, Harley-street, elder daughter of Mr. and Mrs. J. D. Patullo, of Hurst Lea, Albury Heath, Surrey.

The marriage of Flying Officer K. K. Brown, pilot instructor for the Cinque Ports Flying Club, to Miss Stanbury, of " Bycliffe," The Riviera, Sandgate, took place on Thursday, June 19, at Sandgate Parish Church.

To be Married

The marriage arranged between Flight-Lieut. J. D. I. Hardman, D.F.C. R.A.F., and Miss Dorothy Ashcroft Thompson will take place at St. George's Church, Hanover Square, on Tuesday, July 8, at 2.30 o'clock.

The engagement is announced between Flight-Lieut. Ronald Hartley Carter, R.A.F., younger son of Brig.-Gen. C. H. P. Carter, C.B., C.M.G., C.B.E., and of the late Mrs. K. M. Carter, and Eileen Mary Dorothea, younger daughter of Maj. G. C. Bowen, D.S.O., and Mrs. Bowen, of 40, Madeley Road, Ealing.

The engagement is announced between Flight-Lieut. James Hill, M.B., R.A.F., second son of James Hill, M.D., and the late Mrs. Hill, Argyll Lodge, Renfrew, and Chrissie Kennedy, younger daughter of the late Fred Scott and Mrs. Scott, Westmoor, Rainham, Kent.

The engagement is announced between Flight-Lieut. A. O. Lewis-Roberts, D.F.C., R.A.F., elder son of Mr. and Mrs. Lewis-Roberts, Dundee, Natal, and Marjorie, elder daughter of Lt.-Col. and Mrs. H. E. Gresham, Brank-some Manor, Bournemouth West.

The engagement is announced between Charles Henry Appleton, R.A.F., son of the late Captain Appleton, King's Dragoon Guards, and grandson of the late Henry Appleton, Rawden Hill, Arthington, and Yvonne Marjorie Harding, daughter of the late Ivan C. Harding, of Castel Aly, St. Servans-sur-mer, France, and granddaughter of the late General W. H. Ralston, C.B., and Mrs. Ralston, Lyndhurst, Hants.

Capt. Keep's New Post

We are informed by Petters, Ltd., of Yeovil, that pursuant to a resolution of the Board, Capt. A. S. Keep, M.C., B.Sc., has been elected additional Director of this company, the appointment dating from the 19th instant. Capt. A. S. Keep has for many years been associated with this company as technical superintendent of the aircraft department.

Dance after the R.A.F. Display

An informal dance will be held at Hanworth on the night of June 28, after the R.A.F. display at Hendon. There will be no extra charge for this dance, and tickets will not be required. A special Hanworth band is being organised by Mr. A. D. Carroll (assistant instructor).

MODELS

SOCIETY OF MODEL AERONAUTICAL ENGINEERS.

(S.M.A.E.)

S.M.A.E. at Wimbledon

Saturday, June 14, was the date fixed for the John Shelley Cup Competition for power-driven models. In the past this has always been an interesting competition, and on the 14th it was hoped that several of the petrol-driven models known to have been built and flown (one at least with great success) would appear to make a fight. The present holder, however, D.A. Paveley, was the only entrant, and he attempted no more than to make the necessary flights to claim the cup once more. The compressed air-driven model made three flights of 18⅘, 27, and 21½ sec.

Rubber-driven models were present in numbers, and were flown by Badley, Evans, Fry, Van Hattum, Paveley, Willis, and many more.

The Wakefield International Cup, the Farrow Shield, and Group-Captain Sanders Cup will be flown for at Halton on Saturday, July 19, and the Halton Model Aircraft Society extends a very hearty invitation to any or all of the members of the S.M.A.E. and its affiliated clubs. The workshops, barracks—in fact, the whole camp is thrown open for visitors and many interesting events are on the programme.

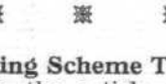
THE eliminating trials for the "Wakefield" International Cup were held last Saturday on Wimbledon Common. Despite the gusty wind, much good flying was accomplished, and the following competitors made numerous and consistent flights (the best duration is given in each case):—D. A. Paveley, 64·4 sec.; J. Pelly-Fry, 63·4 sec.; R. N. Bullock, 64·0 sec.; T. H. Newell, 73·0 sec.; A. T. Willis, 55·2 sec.; T. H. Ives, 64·4 sec.; J. J. Holt, 61·4 sec.

The team of six to represent Great Britain in the Cup will be chosen from the above. Mr. W. E. Evans and Mr. J. Van Hattum also made some excellent flights throughout the evening.—S. G. Mullins (Hon. Sec.), 72, Westminster Ave., Thornton Heath, Surrey.

THE MODEL AIRCRAFT CLUB

(T.M.A.C.)

An Inter-Team Competition will be held on Wimbledon Common (Windmill), Saturday, July 5, at 4 p.m. The teams will be selected on the field, all types of models may compete, and prizes will be given for the best performance in each team. Competition Secretary, T. Newell, 32, Veroan Road, Bexley Heath, Kent.



"Titanine" Doping Scheme T.5.S.

WITH reference to the article entitled "Doping without a Shop" which appeared in our issue of May 30 last, we have been asked by Titanine-Emaillite, Ltd., of Empire House, 175, Piccadilly, London, W.1, the manufacturers of the well-known aeroplane dopes, varnishes and lacquers, to state that as long ago as 1928 they, realizing the necessity of producing a doping scheme for application under severe and adverse conditions, placed their "fool-proof" scheme T.5.S. on the market—officially known as a doping scheme "for use under adverse conditions." This scheme requires only four coats to give a high-class result and finish. On all occasions when it has been applied, it has given most excellent results, and this testifies to the efficiency of the Titanine technical staff who so early overcame what was at one time regarded as the unsurmountable difficulty of doping under conditions of humidity, cold, and draught.

Lord Douglas-Hamilton a Caterpillar

As the result of a collision between his machine and another, Lord Malcolm Avondale Douglas-Hamilton, the third son of the Duke of Hamilton, and a pilot officer in the Royal Air Force, jumped with his Irvin air chute and saved his life. The mechanic in the other machine, L. C. W. Hagen, also save his life by parachute. This officer and airman are now members of the Caterpillar Club. The collision occurred at 1,000 ft. over Upavon, Wiltshire.

Stockholm Aero Show Postponed

OWING to the fact that the buildings could not be finished in time, the International Aero Show, which was to have been held in Stockholm from September 6 to 28, has been postponed until May of next year.

R.A.F. Casualties

ON Thursday, June 12, a Horsley of No. 100 Bomber Squadron and a Bulldog of No. 3 Fighter Squadron were practising at Upavon the air combat for the R.A.F. Display when a collision occurred. Sergt. F. E. O'Meara, the pilot of the Horsley, was killed. His passenger, L.A./C. W. Hagan, and P./O. Lord M. A. Douglas-Hamilton, of No. 3 F.S., both descended safely in their parachutes.

On Friday, June 13, Flight-Lieut. N. H. N. Fletcher, of the Central Flying School, was killed at Wittering. He was to have been one of three C.F.S. pilots to perform flight aerobatics in Gipsy Moths at the Display.

On Tuesday, June 17, Wing-Comdr. B. E. Smythies, D.F.C., *p.s.a.*, O.C. Station H.Q., North Weald, was taking off in a two-seater Siskin with A./C. F. R. S. Holben as passenger, when his machine hit a lawn roller, crashed, and caught fire. Holben was slightly injured, but the wing-commander died in hospital. The late officer entered the Royal Engineers in 1905 and joined the R.F.C. in 1915. He served in France as squadron commander, and was awarded the Distinguished Flying Cross for his services. He subsequently served at the Air Ministry, went through the Staff College at Andover, and later commanded No. 99 Bomber Squadron. In 1926 he won the R. M. Groves Memorial Essay prize. Last August he was given command of Upper Heyford, where Nos. 29 and 56 Fighter Squadrons are stationed. Both these squadrons, together with No. 111 F.S., are to form a Fighter wing at the Hendon Display.

PUBLICATIONS RECEIVED

The Petrol Engine. 3rd Edition. Temple Press, Ltd., 5-15, Rosebery Avenue, E.C.1. Price 3*s.* 6*d.* net.

Board of Education: Science Museum, Handbook of the Collections Illustrating Aeronautics.—III.—The Propulsion of Aircraft. By M. J. B. Davy and G. T. Richards. H.M. Stationery Office, Kingsway, London, W.C. 2. Price 2*s.* net.

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AERONAUTICAL PATENT SPECIFICATIONS

(*Abbreviations*: Cyl. = cylinder; i.c. = internal combustion; m. = motors. The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

APPLIED FOR IN 1929

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3,042. V. WISNIEWSKI. Propelling and supporting device for aircraft. (329,994.)

6,405. A. E. L. CHORLTON, R. A. DE H. HAIG and H. J. STIEGER. Means for bracing cantilever wings against torsional deflection. (329,968.)

7,150. E. B. BOUGHTON, W. EMMOTT and D. T. BROCK (trading as Automotive Products Co.) and A. C. BURDON. Hydraulic brakes. (330,004.)

7,468. A. SOLDENHOFF. Wings for aircraft. (307,463.)

8,761. SOC. ANON. DES ATELIERS D'AVIATION L. BREGUET. Aeroplanes. (309,074.)

11,883. INDIA RUBBER, GUTTA PERCHA AND TELEGRAPH WORKS CO., LTD., and W. L. AVERY. Brakes for landing-wheels. (330,065.)

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24,519. C. H. KENYON. Control of aircraft, etc. (330,184.)

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